# Physical Activity and Space: Promoting Physical Activity Through the Design and Planning of Public Buildings and Spaces

A Draft Report Prepared For the **Robert Wood Johnson Foundation**

**Prepared By:**
Craig Zimring & Sharon Tsepas
Ph.D. Program, College of Architecture, Georgia Tech, Atlanta, GA 30345-0155
Phone: 404-894 3915. Fax: 404-894 1629. E-mail: craig.zimring@arch.gatech.edu; SSeeps@aol.com

**Team Members:**
Craig Zimring, Sharon Tsepas, Mahbub Rashid, Fehmi Dogan, and Debajyoti Pati
Doctoral Program, College of Architecture, Georgia Institute of Technology

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**Draft Report Contents**

# Preface

This draft report contains several sections describing the status of the "physical activity and space" research project funded by the Robert Wood Johnson Foundation. The Purpose of the project was to explore opportunities to increase everyday physical activity by improvement in architectural and site design. The initial focus of the project was on public buildings.

The following is a brief description of each section of the report:

**Section I: Executive Summary**

In the executive summary, a working model for considering the impact of buildings and sites on physical activity is proposed based on the review of the research evidence. Some areas for further research are suggested, and some policy interventions, taking advantage of opportunities where "early adopter" decision-makers influence the lives of millions of Americans, are proposed.

**Section II: Literature Review**

The literature review, presented in the form of evidence tables, provides the evidence of how design may affect physical activity at the scales of building and site. The evidence tables also include the conventional wisdom and best practices among designers about how to increase physical activity.

**Section III: Logic, Causal and Action Models**

The logic model presented in this section describes how different points of leverage and interest and support groups may be able to bring about changes in health and lifestyles through a set of strategies changing or modifying building design and site selection practices. In the model, it is assumed that the long-term health and life style changes will occur only through a set of short-term and intermediate changes as these strategies are implemented.

The set of causal models presented here are based on the research evidence. They show how a set of individual and environmental factors impacting physical activity are related to one another at the levels of individual decision making, site selection, site design, and building design.

The action models for three design domains - site selection, site planning and design, and building design - are the domain specific versions of the logic model for everyday physical activity by design presented before. Each action model shows the particular sets of input groups, strategies, immediate, intermediate, and long-term outcomes relevant to each design domain.

**Section IV: Appendices**

A. The Building Delivery Processes of Three Public Agencies

The flow charts in this section describe how three public agencies – the US General Services Administration, the Department of General Services (DGS) of California, and the City of Atlanta, Georgia – deliver their buildings. The aim of studying these delivery processes was to discover opportunities for policy interventions that may affect physical activity through changing building practices.

B. The Results of a Web-based Questionnaire Survey of the Leaders of State Public Buildings Service Departments on Issues of Physical Activities and Public Buildings and Spaces

This section reports the findings of a web-based survey of the leaders of the public building industry. The survey and interviews were aimed at understanding how considerations of health, and particularly increased physical activity, can be introduced into public buildings.

C. State Real Estate Agencies

The tables in the section contain the information of several state real estate agencies, including the mission statement, address, contact person and a brief description of the services of each organization.

# Section I: Executive Summary

# Physical Activity and Space: Promoting Physical Activity Through the Design and Planning of Public Buildings and Spaces

Executive Summary

The persistence and seriousness of the US epidemic of diseases related to obesity and inactivity have led to a rapid expansion of research and policy development aimed at understanding the role of the physical environment in active living. In September 2003 there were *two* special issues of key journals (*American Journal of Public Health, American Journal of Preventive Medicine*) devoted to the physical environment's role in physical activity and the Robert Wood Johnson Foundation and others have devoted considerable resources to the problem. As encouraging as this is, most attention has been focused on the urban and neighborhood scale, considering issues such as the role of the availability, structure and attributes of parks, trails and sidewalks. However, in this sedentary post-industrial society, most adults and children spend the vast majority of their day in and around buildings: much less is known about how the form and design of buildings and sites affects everyday physical activity. In this paper we propose a working model for considering the impact of buildings and sites on physical activity and review the research evidence. We suggest some areas for further research and propose some policy interventions, taking advantage of opportunities where "early adopter" decision-makers influence the lives of millions of Americans.

**An Ecological Model of Influences on Physical Activity**

The research community is exploring the role of the physical environment on activity for *applied* reasons: to help Americans become more active. As a result, the research team is developing a model that links evidence to decisions that can be influenced through policy development and information dissemination. Designed environments are very heavily dependent on context. Buildings are not generic but rather are designed for and occupied by specific organizations, who have specific staff, customers and visitors and their own rules, histories and cultures and are located in a specific location that has a specific surrounding and spatial connection. This situation seems well suited to an ecological model (Sallis, Bauman, & Pratt, 1998). As is illustrated in Figure 1, we see physical activity as related to environmental factors, but where organizational and personal factors both moderate the role of the environment and have direct effects. ***Personal Factors*** include demographics, health variables, attitudes and beliefs related to physical activity, psychological or behavioral attributes and skills (King, 2001). ***Organizational Factors*** include the goals, philosophies and culture of organizations and social structure and support may facilitate or impede efforts to participate in physical activity (King, Stokols, Talen, Brassington, & Killingsworth, 2002).

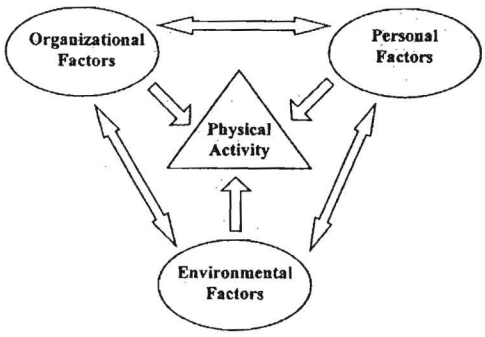


**Figure 1: A preliminary ecological model**

The experience with buildings is spatial and **environmental factors** can be considered at least four nested levels of increasing spatial scale: 1) element design; 2) building design; 3) site selection and design; and, 4) urban design. These levels reflect the general temporal flow of a design project. Most clients choose a site before they design a building, and design a building before they design elements. Also, the different spatial scales have differential rates of change and often different decision-makers. Whereas carpeting and improved lighting might be added to a staircase in a matter of weeks, it usually takes decades to substantially alter the form of a city. The focus of this paper is to consider the role of the first three levels. Also, while there are many important interactions between personal factors, environment and physical activity, the intention of the person involved appears particularly significant because it allows us to focus on different kinds of supports for activity. ***Intentional Physical Activity*** is aimed at recreation, exercise,

improving health and functioning; it can be individually or facility-organized such as would be found in exercise rooms or outdoor exercise areas. ***Incidental Physical Activity*** is the byproduct of engaging in an activity in which physical activity was not the purpose of the action. Incidental physical activities may be the result of routine activities such as walking to or from transit or home or housework like laundry or situational activities such as household repair. ***Hybrid Physical Activity*** results when exercise may not be the primary goal though the individual may make a decision to be active while working toward that goal, such as choosing to use the stairs instead of the elevator. Intentional, incidental and hybrid activities emphasize different facilities. While facilitating intentional activities focuses on providing access to indoor and outdoor facilities such as exercise rooms and walking or bike paths, incidental and hybrid activities are about understanding the relationship between layout, design and everyday life.

In the following sections, we review the role of elements, buildings and sites for physical activity.

**Building Elements**

The design of individual building elements such as stairs, exercise rooms, shower rooms or plazas can either promote or deter activities by features of their individual design that affect availability and convenience, desirability, safety and comfort. The provision of amenities that support physical activities such as benches, water fountains, protection from adverse climate can support physical activity while competing features such as elevators and barriers such as door locks, grade changes, non-ergonomic design, and poor placement of building elements can not only deter physical activity but potentially can neutralize the efforts of other features designed to promote physical activity.

While building elements such as elevators and security provisions may be barriers to the promotion of physical activity in buildings, stairs have real potential for effective, accessible and economical health impact. Stairs are already present in almost every building and people can use them without changing clothes or engaging in major lifestyle changes. Several studies have found that relatively modest increases in stair use can have positive health and lifestyle effects (Boreham, Wallace, & Nevill, 2000). The Harvard Alumni Health study of more than 11,000 men found that those who climbed at least 20 floors per week had a 20 percent lower risk of stroke or death from all causes (Paffenbarger, Hyde, Wing, & Hsieh, 1997). Two minutes of additional stair climbing per day would result in weight reduction of more than 1.2 pounds per year, more than eliminating the 1 pound per year average weight gain by US adults.

Several studies suggest that point-of-decision prompts can increase stair use, but this is dependent on demographic and contextual factors and might be temporary (Coleman & Gonzalez, 2001; Kerr, Eves, & Carroll, 2001). Nonetheless, the weight of the evidence and low cost of the intervention has caused the CDC Community Guide to recommend point-of-decision prompts as one of six recommended interventions aimed at increasing physical activity (Kahn et al., 2002). At least three well-controlled studies have used both motivational signs and have made aesthetic interventions such as music and artwork and have found that more people used the stairs (Boutelle, Jeffery, Murray, & Schmitz, 2001). For example, in a two-year study in one of their own buildings in Atlanta, the CDC progressively improved the lighting, and added art, music and color and found persistent modest increases in use, all at a cost of $16,000 (Kerr, In press). The results of the CDC study led them to recommend improved stairs in all of their facilities worldwide.

Stairs provide an example of the complex interactions between scale that characterize building design and use. Local characteristics of a building such as color or art in a staircase or even point-of-decision prompts can influence behavior, as can relational characteristics such as views to a staircase. However, these operate within global configurations that dictate distance and accessibility. These scales interact with the ways in which people make decisions. Some decisions are made locally such as when someone sees a point-of-decision prompt; other decisions are part of more considered trip planning (Haq & Zimring, 2003).

Much less is known about how other building elements influence physical activity. While it is plausible that the design of exercise rooms or hallway amenities influence activity, we have been unable to find research evidence.

**Building Design**

The task of building programming which occurs in the early planning stages of a building project requires the architect or designer to identify, quantify or qualify, prioritize and allocate the functional, spatial, budgetary, structural, service, operational and maintenance requirements with the goals, values and objectives of the building's owner and users. The task of creating activity-friendly buildings may depend a great deal on the integration of environmental philosophies and features into the programming stage of the building where the attributes and relationship between specific spaces of the building are determined. While programming can be used to specify the preferred size and physical attributes of spaces that may promote physical activity, many activity-friendly features of the environment may be in competition with higher prioritized values or needs such as functional and budgetary considerations, increasing the difficulty in incorporating them. Further, while activity-friendly programming may be compatible with other issues that are being actively promoted to the architectural industry like sustainability, it may be incompatible to other current issues such as the requirement for greater security and control within the building and site environment.

The building design process is both a structured and innovative process where the spaces identified in the building program are configured in a building with structure, circulation, services, form and aesthetics. While an architect may endeavor to design with uniqueness and significance, the methods of design also depend on the influence of other building genotypes and their own past practices and methods of design. As there are very limited examples of activity-friendly buildings for architects to assess or emulate, the development of activity–friendly design practices have received minimal attention in both research and practice. The idea that environments could be designed to promote physical activity, though accepted intuitively by architects and designers, is based on limited evidence.

Research on the effect of building programming and design on physical activity concentrates on three basic features within the building: the provision and design of activity-programmed spaces, the provision and desirability of activity-inducing spaces and amenities, and the design of the building's circulation system. ***Activity-Programmed Spaces*** include specialized spaces like exercise rooms, swimming pools, running tracks and multi-purpose rooms that could be designed as venue for physical activity. Design features associated with the greater use of such spaces has included the presence of views of people, activity and nature from exercise area (Regnier, 1994) as well as views into these spaces from the circulation system (Howell, 1980; Parker & Joseph, 2003). It has also been suggested that the central location of exercise and activity areas and the presence of wide, unobstructed circulation corridors with seating at regular intervals supports walking behavior within a setting such as a retirement community (Regnier, 1994). ***Activity Inducing Spaces*** create incidental physical activity derived from travel for regular necessary activities to destinations such laundry rooms in residential or cafeterias in workplaces. For example, the walk to the dining room or mailroom for many elderly in residential facilities constitutes a physical activity derived from a regular necessary activity. The provision and location of services and other activity attractors such as coffee kiosks outside the immediate work environment may promote workers to engage in physical activity by walking and stair climbing to these destinations in the workplace environment.

The building's circulation system is the interior spaces, corridors, elevators and stairs and lobbies that connect the programmed spaces of the building. The circulation system provides opportunities for walking, the most popular type of physical activity. To date, there has been very limited research to relate understand how people understand and move through buildings and the opportunities to promote walking for movement and communications in domains such as the workplace. Environmental cognitive research has suggested that the configuration of the physical environment can influence occupant behaviors (Dalton, 2001; Hillier, 1996; Peponis, Zimring, & Choi, 1990; Zimring & Haq, 2003).

**Site Selection and Site Design**

"Site selection" is an important step for a client. Where one places a school or office building or retirement center strongly influences availability of amenities that one might walk to. At the level of the site, we know that it matters where you locate the building. People will walk from work or housing, but only if there are well-connected nearby amenities and the paths to get there are safe and attractive (Sallis et al., 1998).

Some sites are large enough to accommodate walking, running; some large campuses might even have other amenities. The relationship of the site within the context of both the immediate neighborhood and the catchment area of the building's users as well as environment features such as its topography, climatic constraints, and landscape resources and potentials have been identified to date as an influence on opportunities for physical activity especially walking trips.

Several studies have shown that workplace is a base for walking trips in urban settings. The proximity of potential walking trips, such as transit, shopping, or eating from the public building are predictors of the amount of walking people will do during their workday, as the large Atlanta SMARTRAQ study is showing (Frank, 2004). Land-use and densities are seen as predictors of pedestrian flows. Activity centers such as office buildings, shopping areas, and transit stations are attractors for pedestrians (Pushkarev and Zupan, 1975). Several studies have shown that people will walk longer distances to and from transit and home from work than other types of walking trips (Seneviratne, 1985)

A study of trip-linkage patterns showed that the highest percentage of non-work activity trips made via walking was before, during, and after work (Wegmann & Jang, 1998). A lower than average percentage of non-work trips was made before and during work hours. Wegmann & Jang further suggest that land uses and density around settings that would be served by public transportation encourage trips during work and lunch hours. In their study, the types of activities people engaged in most during work/lunch hours were personal business, work business, shopping, and socializing/entertaining. Studies of activity patterns suggest that the workplace is second to home as a base for activity trips.

Several studies support the idea that there is maximum distance pedestrians are willing to travel for different activities, or destinations such as walking distance to a building. One study (O'Sullivan & Morrall, 1996) recommends pedestrian zone radial distances, ranging between 400 meters (CBD Office) and 900 meters (CBD Residential). Calthorpe recommends a ¼ mile and ½ mile radial (5 - 10 minute walk) to attractions in pedestrian and transit oriented development (Calthorpe, 1993). These findings are consistent with other studies of walking distances (Seneviratne, 1985).

The physical characteristics of the path of travel can influence the attraction of certain paths for walking. Environmental factors such as the visibility of the destination, aesthetic and visual experience, the stimuli interest of the path, obstructions and proximity to traffic congestion influence use of paths (Rapoport, 1977; Zacharias, 1997).

We have been unable to find much controlled research at the site level, but if we assemble the available evidence with case studies and recommendations for pedestrian-oriented development, some issues appear. It seems that a critical question is the interface (visibility or connectivity) between the site and the larger pedestrian or bike network. Also, it appears that connections between buildings and the edge of the site are important. It seems quite different if you have to cross a parking lot than if you can walk directly to the edge of site in a pleasant way. The connections between buildings seem significant on multi-building sites, as a support for both intentional and hybrid physical activity: can people use these paths for a lunchtime walk? Will they walk rather than drive to a distant on-site building?

**Research Directions**

While the predictors of physical activity at the urban scale are only beginning to emerge we know even less at the building and site scale. We suggest that there are at least four general categories of site/building/element research: 1) documenting baseline activity and variability; 2) developing metrics, similar to the metrics that being developed at the urban scale; 3) exploring impact of specific features or attributes that have been identified by advocates of activity-friendly design; and 4) developing case studies.

- **Establish baselines**: How much do people walk before, during, and after work? What are the trip-types?
- **Develop and validate global, relational and local measures** for issues such as building layout, views, local attractiveness, task support.

- **Explore selected urban-scale variables in sites and large buildings** such as the role of destinations, route quality, connectivity, the roles of attractors in generating movement, the nature and types of attractors

- **Understand the role of element design**: How does stair design and location affect use? How do views into activity areas affect use? How can we construct long interior paths that can be used by individuals and walking clubs?
- **Case studies:** Decision makers consistently request well-documented case studies that document both outcomes and the process of implementation, including issues such as first-costs and maintenance costs.

**Interventions**

We seek to help transform the building industry to help make buildings more activity-friendly. The problem is that while the US building industry is very large—over $935 billion in 2003—it primarily remains a patchwork of small clients, builders and consultants with multiple methods of building delivery. This makes it difficult for any initiative to have wide influence. However, public construction represents one important exception to this. In 2002 there was about $224 Billion of public construction. Whereas some of this is scattered among myriad local authorities, a good portion is concentrated among several large state and federal agencies. The US General Services Administration houses some 1.1 million US office workers, and state agencies house another 2.6 million. While GSA and the Department of Defense are the largest federal builders and landlords, the group of 27 federal agencies belonging to the Federal Facilities Council is a coherent group representing all federal construction of some $18 billion in 2003. Some 38 states, and all of the large states other than Texas, have central general services agencies that coordinate most or all construction for the state. There are also several well-attended organizations that appear open to active living workshops such as the National Association of State Facilities Administrators (NASFA).

In addition to being centralized, federal and state agencies are likely to have cradle-to-grave responsibility for buildings, from initial planning through occupancy and hence to have a concern for how planning and design affects health and worker effectiveness. They often tend to be programmatic in that they develop methods, procedures and systems for delivering buildings that are used over a long period of time. Also, public agencies have actually proven to be innovative. The State of California and the US government are both building office buildings in California where the main elevator banks will stop only on every fourth floor, and where able-bodied workers and visitors will be expected to walk up or down to their floor. Many public agencies are entering into public-private partnerships for developing cities and neighborhoods and can set the tone of much larger private development. Also, public buildings of course do more than enclose public functions. They have a symbolic function that goes beyond daily activities. It is not a coincidence that Martin Luther King marched to the Montgomery County Courthouse rather than to Woolworth's.

Public architecture provides a real opportunity for enlisting the support of top decision-makers. As part of this project we recently conducted an online survey of state architects and CEOs of state general services departments; they are widely supportive of active living research and implementation initiatives, and are particularly interested in guidelines and case studies. There is an opportunity for creating programmatic support in public agencies and particularly for creating plug-ins where agencies can amend their current procedures without creating new ones. We see a role for both model language, such as how to specify an activity friendly circulation system as well as developing procedures for tasks such as creating budget documents, health impact assessment and value engineering. Many building delivery organizations are now using the balanced scorecard to evaluate their performance and might be open to considering health and activity as a component of it. We also see a chance to impact the regulatory structure and to impact education and certification.

In summary, there appears to be several opportunities for research for linking physical activity opportunities with design decisions at building and site scale that can result in effective and relatively rapid

interventions. As a fledgling field of research, it is necessary to establish the baselines for workplace activity, create measures, identify the variables of the environment which impact on physical activity within layout and attributes of the building's site, program, configuration and elements. There are real opportunities for linking research and implementation by creating awareness, developing a buy-in by decision-makers in the building process, enlisting organizations especially within public building agencies and developing programmatic support, tools and measures to facilitate and evaluate activity-friendly buildings.

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# Section II: Literature Review

# PROPOSITION CHART: SITE SELECTION

*Increasing Physical Activity through the Design and Planning of Public Buildings and Spaces*

| Proposition | Support | References | Best Practices | Best Practice Reference | Image |
|---|---|---|---|---|---|
| **Public Office Buildings are Walking-Trip Generators** | ▪ Office centers are attractors for pedestrians<br>▪ Highest % of non-work activity trips before, during, and after work<br>▪ Workplace 2nd to home as base for trips<br>Large portion of trips by employees vs. visitors or shoppers | Wegmann & Jang,1998<br>Pushkarev and Zupan, 1975<br>Seneviratne, 1985 | c. Locate public building in areas of mixed land uses (or potential mixed-use)<br>Use public building as anchor for redevelopment and connections | Llewelyn-Davies, 1998 | |
| **Connections between Public Transit and Workplace Increase Walking Trips** | ▪ Transit riders make more walking trips<br>Walking trips longer to and from work via transit | O'Sullivan & Moralle, 1996<br>Seneviratne, 1985 | Locate public building within .25-.5 mile walking distance from public transit | Calthorpe, 1993<br>Llewelyn-Davies, 1998 | |
| **Walking distance is an important determining factor in the choice to walk and varies for different trip types.** | ▪ The average walking distances in these studies and the recommended pedestrian zone radial distances range between 400 (CBD Office) and 900m (CBD Residential.<br>▪ <u>Walking Distances</u><br>To shopping mean: .21 mile<br>To parking mean: .23 mile<br>To bus mean: .16 mile<br>To eat mean: .18 mile<br>To home mean: .42 mile<br>To Light Rail Transit: .19 mile | O'Sullivan & Moralle, 1996<br>Seneviratne, 1985 | | | |
| **Locating Public Buildings in Highly Integrated Areas** | ▪ People are more likely to walk in areas with denser interconnected streets | Hillier et al (1987)<br>Peponis et al (1989) | | | |

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|---|---|---|---|---|---|
| **Increases the Likelihood of Walking** | interconnected streets.<br><br>▪ Pedestrian presence is strongly correlated to the level of integration of the urban grid. | Hillier et al (1993)<br>Berrigan and Troiano (2002) | | | |

# PROPOSITION CHART: SITE DESIGN/COMMUNITY DESIGN

*Increasing Physical Activity through the Design and Planning of Public Buildings and Spaces*

| Proposition | Support | References | Best Practices | Best Practice Reference | Image |
|---|---|---|---|---|---|
| **Aesthetic Qualities Impact Walking Distance** | Visual stimulation encourage pedestrians to make longer trips. | Zacharias, 1997<br>Rapoport, 1977 | | | |
| **Aesthetic Qualities Impact Mode Choice** | ▪ Car dominated aesthetics discourage pedestrian use.<br>▪ Aesthetic emphasis at the pedestrian scale promotes walking | Forward, 1998a<br>Forward, 1998b<br>Martincigh, 2003<br>Lee et al., 2000 | a. Discourage large open areas of parking and visual clutter<br>Encourage visual interest at the pedestrian scale; i.e. storefronts, public art, clean and well maintained spaces, streetscaping, etc. | National Center For Bicycling and Walking (www.bikewalk.org) | |
| **Comfort and Percieved Safety Impact Mode Choice** | ▪ Poor lighting discourage pedestrian use<br>▪ Adequate sidewalks and sidewalks promote pedestrian use | Forward, 1998a<br>Forward, 1998b<br>Forward, 1998 c<br>Lynch & Atkins, 1998<br>Nair, 1994<br>Lee et al., 2000 | a. Provide adequate pedestrian lighting<br>b. Reduce automobile speeds through traffic calming<br>Reduce barriers to through movement | National Center For Bicycling and Walking (www.bikewalk.org) | |
| **Building Orientation Impacts Mode Choice** | ▪ People are less likely to travel via car in areas with pedestrian oriented buildings (entrances on the sidewalk, parking behind) | 1000 Friends of Oregon, 1994<br>Baker, 1993 | | | |
| **Attractors Impact Mode Choice, Walking Distance, and Route Choice** | ▪ Pedestrian is subject to attractive or repulsive influences, approaching or avoiding certain individuals or things<br>▪ Attractors impact route choice and movement | Martincigh, 2003<br>Turner & Penn, 2000<br>Zacharias, 1997<br>Hoogendoorn & Bovy, 2002<br>Rapoport, 1977<br>Helbing, 1991<br>Peponis et al., 1990 | a.Provide active storefronts<br>b. Provide fountains and art objects<br>c. Provide attractor areas such as plazas and walking/jogging areas<br>d. Consider building | Leadership for Active Living: Leadership Action Strategies | |

| | | | | | |
|---|---|---|---|---|---|
| | ▪ Visual stimuli impact movement patterns.<br><br>▪ Pedestrians move towards area of higher pedestrian density<br><br>▪ Pedestrians are more concerned with subjective (perceived) distance than actual distance. Attractors (people, signs, activity, scale and size of buildings, colors, etc.) play a role in subjective definition of areas. | Lee et al., 2000 | architecture (scale, size, colors, materials, details) as attractor | | |
| **Pedestrian Amenities Impact Walking Behavior** | People will walk more often if pedestrian amenities such as sidewalks, fountains, benches, shade trees, and street lights are present. | State of Louisiana (1998)<br>Lee et al, 2000 | Incorporate wide sidewalks, shade trees, fountains, pedestrian scale lights, and benches | Leadership for Active Living: Leadership Action Strategies | |
| **A visible walking surface (sidewalk, path) is a fundamental provision for the promotion of pedestrian movement** | • 'Natural vision' : humans move in a direction that will afford them the possibility for further movement<br><br>• Walking surface affords movement | Turner & Penn, 2000 | a. Make entrances of civic buildings directly accessible<br>b. Provide pedestrian links from parking. | Leadership for Active Living: Leadership Action Strategies | |
| **Connectivity (Integration) Impacts Walking Behavior at the Site Level** | • There are strong and significant correlations between observed activity and levels of integration at the site level. | Hillier et al., (1998) | | | |
| **Locating parking offsite or limiting on-site parking increases walking distance** | • Workers (long term parkers) are willing to walk longer distances from parking than short term parkers<br>• Workers are willing to walk | Pushkarev and Zupan (1975)<br>Seneviratne, P.N. (1985) | a. Limit on-site parking<br>b. Locate parking off-site or share parking with an existing off-site use<br>c. Provide access to off- | | |

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| | longer distances to parking than to other destinations such as shopping or eating. | | site parking areas by locating site within .25 mile and providing pedestrian connections. | | |

# PROPOSITION CHART: BUILDING DESIGN

*Increasing Physical Activity through the Design and Planning of Public Buildings and Spaces*

| Proposition | Support | References | Best Practices | Best Practice Reference | Image |
|---|---|---|---|---|---|
| **Point of Decision Prompts increase stair use** | • Signs promoting stair use located near elevators or escalators has increased stair use in several studies.<br><br>• The message on the sign contributes to its effectiveness.<br><br>• Demographics may play a role in the effectiveness of point of decision prompts and/or the message. | Andersen (1998), Blamey (1995), Brownell (1980), Coleman (2001) Boutelle (2001) CDC (2002) | a. Place point of decision prompts near elevators, escalators, and stairwells.<br><br>b. When possible, focus on escalators and escalators that are adjacent to stairs. | | |
| **Attractive Stairs increase stair use** | ▪ Studies show that adding music, art work, lighting, and better finishes to stairwells increases stair use. | Boutelle (2001) CDC (2002) | Design attractive stairwells that include artwork, music, lighting, and attractive finishes. | | |
| **Shower Facilities/Changing Rooms increase walking, jogging, and bicycling** | ▪ Adding shower facilities increases the number of people who bicycle and walk to work | Vouri et al. (1994) | Include changing rooms and shower facilities | | |
| **Slower Elevators/ Escalators increase stair use** | ▪ Studies have shown that people are more likely to take the stairs when they perceive a time savings | Cheung & Lam (1998) | Provide fewer elevators and escalators and/ or slower travel speeds | | |
| **Building Layout and Configuration impact walking behavior** | • There are statistically significant correlations between the actual presence of people and integration at the building level. | Gross & Zimring (1992) Peponis et al. (1990) Peponis et al. (1997) Ul Haq (2001) | a. Design layout to be intelligible for navigation through the building and to/from the site<br>b. Make connections | | |

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| | • Intelligibility (how well a building is understood plays a role in the ability for people to navigate comfortably through buildings and the routes they will take. | | understood though intelligible design<br>c. Design integrated layout | | |
| **Attractors promote movement through buildings** | A study of the Tate Britian Gallery indicates a significant impact of attractors in route choice and movement. | Turner and Penn (2000) | a. Provide areas of high activity at ground level (shops, lobby areas, eating facilities)<br><br>b. Use attractors such as seating areas, signs, artwork, and architectural elements to guide and promote movement through building<br><br>c. Provide visual connections to attractors (inside and out) throughout building. | | |
| **Building Orientation Increases pedestrian activity** | A study of building orientation indicates that people will walk more when buildings are oriented to the street. | Baker (1993) | Use street oriented building design by making physically and visually connected interior/exterior spaces | | |

# PROPOSITION CHART: POLICY

*Increasing Physical Activity through the Design and Planning of Public Buildings and Spaces*

| Proposition | Support | References | Best Practices | Best Practice Reference | Image |
|---|---|---|---|---|---|
| **Public Office Buildings are Walking-Trip Generators** | ▪ Office centers are attractors for pedestrians<br>▪ Highest % of non-work activity trips before, during, and after work<br>▪ Workplace 2nd to home as base for trips<br>Large portion of trips by employees vs. visitors or shoppers | Wegmann & Jang, 1998<br>Pushkarev and Zupan, 1975<br>Seneviratne, 1985 | a. Locate public building in areas of mixed land uses (or potential mixed-use)<br><br>b. Use public building as anchor for redevelopment and connections | Llewelyn-Davies, 1998 | |
| **Offsetting the time costs of walking with increased financial rewards can increase the demand for pedestrian travel.** | • The demand for travel by any mode is strongly influenced by the "cost" of travel.<br><br>• People value cost of travel time spent walking or waiting at a higher rate than travel time by vehicle<br><br>• People are willing to walk longer distances for lower parking rates. | Pushkarev and Zupan (1975) | a. Charge premium for on-site parking<br><br>b. Provide financial incentives for walking to work or taking transit | | |

*Site Selection Literature Table*

| Proposition | Reference | Background/ Objective | Method/Setting/ Participants | Findings | Significance |
|---|---|---|---|---|---|
| **Walking distance is an important determining factor in the choice to walk and varies for different trip types.** | Seneviratne, P.N. (1985) | **Background:** Study of walking distances in Calgary, Alberta Canada to parking facilities, transit stops, and pedestrian facilities.<br>**Objective:** To suggest a method of determining walking distances for use in planning for facilities. | **Method:** Origin (OD) Survey given by interviewer. Pedestrians were intercepted at random at building entrances, transit stops, and mid-block sidewaiks and were asked to trace their route on a map.<br>**Setting:** Central Business District Calgary<br>**Participants:** Pedestrians in the CBD and interviewers (Calgary daytime population =82,000, residential population = 9,500 | **Results:**<br>Trip Type:<br>Note: these are one-way trip distances From Work<br>To shopping mean: .21 mile<br>To parking mean: .23 mile<br>To bus mean: .16 mile<br>To eat mean:.18 mile<br>To home mean:.42 mile<br>To Light Rail Transit:.19 mile<br><br>Trip Purpose:<br>Visitors & Shoppers average trip =.2 mile<br>Employees average trip =.19 mile<br><br>• Large portion of trips by employees vs. visitors or shoppers . Work based trips were over 50%, i.e. one end of trip was at work.<br>• Employees willing to walk longer distances from parking than business visitors or shoppers<br>• Consistent visitors to the CBD, i.e., employees, develop consistent walking patterns<br>• Proportion of males to females relatively equal. (M: 49.1% F: 50.9%) | • It is important to consider critical walking distances of different trip types (i.e., to parking, shopping, eating, transit, to home) when siting a facility, or a trip generator. Maximizing the number of trip types available within critical walking distances of the facility will increase the propensity to walk for these trip types.<br>• The average walking distances in this study, ranging between 800 and 2110 ft support the ¼ mile (to shopping and services) and ½ mile (to transit) walking radius concept used as a guideline for pedestrian & transit oriented development. |

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| | O'Sullivan S & Morrall, J (1996) | **Background:** The quality of the pedestrian environment is an important factor to consider when planning and developing effective service areas for light rail transit stations. **Objective:** Provide walking distance guidelines for light rail transit stations | **Method:** Interview transit riders during peak travel times with a questionnaire and a map where they are asked to point out where they are coming from or going to. **Setting:** Light Rail Stations in Suburban and CBD Calgary **Participants:** Transit riders and interviewers; 1,852 usable questionaires | Average walking distance at Suburban Station:<br>Males: 672 m (.44 mile)<br>Females: 632 m (.42 mile)<br>Average walking distance at CBD Station:<br>Males: 328 m (.22 mile)<br>Females: 324 m (.21 mile)<br>The study recommends the following pedestrian zone radial distances from Light Rail Transit Stations:<br>StationType<br>Local: 700 m (.46 mile)<br>Transfer : 700 m<br>CBD Residential: 900 m (.6 mile)<br>CBD Office: 400 m (.26 mile) | • The average walking distances in this study support the ¼ mile and ½ mile radial (5 - 10 minute walk) guidelines for pedestrian & transit oriented development. These findings are consistent with other studies of walking distances. |
| **Public office buildings are walking trip generators** | Zacharias, John (2000) | **Background:** Pedestrian systems are the statistical walking environments surrounding a generator of traffic, typically a transportation terminal, parking facility, or an office building. The ability to predict flows through a model that considers both system and individual factors would be a useful tool for effective and economical planning of future systems. **Objectives:** To contribute to the development of a predictive model for | **Method:** direct observation & enumeration of pedestrians within the setting to get a flow rate in various system parts; pedestrian counts using the walking enumeration method (Hillier et al. 1993) In this method, the enumerator walks at the same speed as the majority of the pedestrians in the system and counts every person walking in the opposite direction, as well as stationary people. **Setting:** Montreal Underground pedestrian system connecting shopping, hotels, offices, and transit in the CBD of Montreal **Participants:** Pedestrians in the Underground and enumerators | Hierarchy of paths<br>The study found a large amount of variability of pedestrian presence among paths. This can be explained by 1) the linearity of the system as a whole, i.e. there are few alternative paths between centers 2) the large extent of the entire system<br>Directionality<br>There was not a significant difference in directional flow.<br>Day of Week<br>• During the week, trip generation is typically from an office building<br>• General patronage is less than 50% on weekends compared to weekday.<br>Weather<br>The average walking distance (600 m) does not significantly lessen | ▪ A public building can be seen as a traffic generator in a pedestrian system, both for origin and destination trips. A public building is unique in that it is a place where employees work, as well as a place where the public visits.<br>▪ Weekday office employees account for a significant number of trips.<br>▪ Trip origin and destination are often the same for office employees during business hours.<br>▪ The linearity of the path within the system made the path choices limited. In other words, pedestrians could not always choose alternate routes. |

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| | | circulation within underground pedestrian systems by looking at the significance of 3 factors: land use, entry points, and path minimization. | | m) does not significantly lesson with temperature change.<br>Connectedness<br>The relationship between connectedness, or integration, is significant, but weak in comparison to other space syntax studies. | |
| | Wegman & Jang (1998) | **Background:** Typical travel demand models do not directly capture the individual's decision to link trips. Increasingly, work-related travel consists of multiple-stop trips (Lerman and Adler 1976) and and non-work activities. (Gordon et al. 1988)<br>**Objective:** To understand the nature of trip-chaining among workers and how trips influence each other. | **Method:** The study uses 1990 Nationwide Personal Transportation Survey data to look at information on sequential trips made by individual workers. The study was based on a worker's daily trip chaining where the first trip starts at home and the last trip ends at home. | *Results:*<br>More than 60% of trips for work in urban areas represent complex trip-chaining patterns.<br>Highest percentage of non-work activity trips before, during, and after work.<br>• The highest percentage of non-work trips are made for family/personal business, shopping,and social/recreation activities<br>• Males averaged 1.08 non-work trips per day and females averaged 1.38. | • Consideration of trip chaining-patterns in relation to workplace is important when siting a facility.<br>• If key non-work activities are within walking distance from the workplace, the potential for walking trips increases. |
| | Pushkarev and Zupan (1975) | **Background:** This was a significant study of pedestrian travel behavior.<br>**Objective:** to gain an understanding of pedestrian travel demand and provide insight for designing pedestrian facilities. | **Method:** The facility-cordon count method was used. This includes direct observation and enumeration of pedestrians entering and leaving buildings, as well as short interviews with a sample of those being counted. Existing travel survey data for Manhattan and other cities was used for comparison.<br>**Participants:** Pedestrians in the Manhattan and enumerators | Results:<br>• Office buildings produced twice the number of trips per unit of floor space as residences.<br>• Suburban offices produced somewhat more trips by auto alone than downtown offices by all modes.<br>• The trip generation rates of high-intensity retailing and restaurants is higher than that of offices.<br>• Appx. two-thirds of the trips to the urban stores shown appear to be walk-only trips. | • Office buildings in urban settings are important generators of walking-trips.<br>• Surrounding uses, such as retailing and restaurants can generate more walking trips. |

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| **Layout and configuration impact walking behavior.** | Hillier et al (1993) | **Background:** The 'natural movement' theory proposes that movement in an urban grid is determined by the distribution of a configurational quantity called 'integration', which is a measure of the mean depth of every other line in the system from each line in turn. **Objective:** to show that spatial configuration is a main generator of patterns of pedestrian movement. | **Method:** pedestrian counts using the walking enumeration method. In this method, the enumerator walks at the same speed as the majority of the pedestrians in the system and counts every person walking in the opposite direction, as well as stationary people. Integration of the street network is found through computational analysis using programs developed for Space Syntax research. **Setting:** various areas of London | *Results:*<br>• Correlations between integration and pedestrian movement are strong and highly significant.<br>• A 'second order property of configuration, intelligibility, seems to play a role in determining movement. Intelligibility measures the relationship of what can be "seen of the line visually & locally and how this relates to the importance of the line as a whole. | • When possible, public buildings should be sited in areas of high integration to increase the likelihood walking.<br>• Highly integrated areas tend to have more activity and people. Pedestrians are attracted to areas where there are other activities and people are present. |
| | Berrigan and Troiano (2002) | **Background:** This study examines the relationship between a proxy measure of the urban environment and walking distance. **Objective:** to understand the connection between urban form and walking behavior | **Method:** A comparison between home age and walking behavior using data from the Third National Health and Nutrition Examination Survey | *Results:*<br>Adults who lived in homes built before 1946 and from 1946-1973 were significantly more likely to walk 1+ miles more than 20 times per month.<br>Neighborhoods containing older homes are more likely to have sidewalks, denser interconnected streets, and a mix of business and residential uses. | • Areas that have sidewalks, denser interconnected streets, and a mix of business and retail uses have higher levels of pedestrian activity.<br>• Consistent with Space Syntax research |
| **Connections between Public Transit and Workplace Increase Walking Trips** | O'Sullivan S & Morrall, J (1996) | **See above** | ***See above*** | ***See above*** | • Public buildings should be sited within ½ mile of transit.<br>• Average walking distances from transit stations to residential locations is greater than that to commercial locations. This is also consistent with other studies (Seneviratne 1985) of walking distances. |

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| | Seneviratne, P.N. (1985) | See above | See above | See above | • Average walking distances to bus stops is less than to rail transit, shopping, or parking. |

*2.2g. Site Design Literature Table*

| Proposition | Reference | Background/ Objective | Method/Setting/ Participants | Findings | Significance |
|---|---|---|---|---|---|
| **Locating parking away from building increases walking distance** | Pushkarev and Zupan (1975) | **Background:** This was a significant study of pedestrian travel behavior. **Objective:** to gain an understanding of pedestrian travel demand and provide insight for designing pedestrian facilities. | **Method:** The facility-cordon count method was used. This includes direct observation and enumeration of pedestrians entering and leaving buildings, as well as short interviews with a sample of those being counted. Existing travel survey data for Manhattan and other cities was used for comparison. **Participants:** Pedestrians in the Manhattan and enumerators | Results:<br>• The demand for travel by any mode is strongly influenced by the "cost" of travel.<br>• People value cost of travel time spent walking or waiting at a higher rate than travel time by vehicle<br>• People are willing to walk longer distances for lower parking rates. | • Increasing financial rewards of parking off-site can increase walking distances |
| | Seneviratne, P.N. (1985) | **See Site Selection** | **See Site Selection** | Results:<br>• Employees, or long-term parkers, are willing to walk further to parking than other types of visitors to the CBD.<br>• Employees will walk longer distances to parking vs. shopping and eating | Locating |

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|---|---|---|---|---|---|
| **Increase aesthetic value** | Rapoport (1977) | **Background:** Significant theory building research in environment and behavior specifically looking at aspects of urban design<br>**Objective:** to gain an understanding of how people perceive the urban environment | **Method:** Literature review and collection of previous studies and surveys related to the use of urban spaces | • Pedestrians are more concerned with subjective distance (perceived distance) i than actual distance<br><br>• Urban grain and texture, scale and size of buildings, colors, materials, details, people, signs, activity levels, uses, noise levels, light levels, and nature play a role in subjective definition of areas.<br><br>• Imagery that supports culture, world view, and values is a key aspect of perceived environmental quality | |
| | Martincigh (2003) | | **Methodology:**<br>Space supply: a survey of space supply by researchers in every case study environment<br><br>Use demand: survey of residents in the case study environments<br><br>Comparison between supply and demand of the users<br><br>Identify "quality" indicators | Results:<br><br>"Quality" indicators shared by experts and residents:<br>• Mixture of features increasing identification and orientation<br>• Mixture of services, facilities and commercial activities<br>• Variety of details and finishes<br><br>The shared "quality" indicators between experts and residents | |

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| | Lee et al. (2000) | **Background:** A study that examined neighborhood topography for a sample (N=124) of minority women **Objective:** To understand what environmental factors affect walking behavior | **Method:** They completed the Physical Activity Recall (PAR) survey and a sub sample (N=41) completed Sallis' perceived environment scale. | **Results:** Most endorsed sidewalks (80%), street lights (71%), parks (78%), and schools with play fields (71%) in their neighborhood. About half reported bike paths (51%), enjoyable scenery (56%) and seeing others frequently walking or exercising (56%). | |
| **Provision of pedestrian amenities increases walking & bicycling** | State of Louisiana (1998) | **Background:** Statewide Bicycle and Pedestrian Plan | **Method:** Surveys were conducted | **Results:** 30% of the people who responded would walk more often if more benches and water fountains were available. | |
| **Attractors (and detractors) are motivators for pedestrian movement** | Helbing (1991) | **Background:** Mathematical model of pedestrian movement **Objective:** to develop a mathematical model of pedestrian movement that can be used for computer simulation of individual behavior | **Method:** develop a mathematical model that includes coefficients for individual behavior; assumes human behavior is based on individual decisions that show regularities and that pedestrian behavior is usually determined by utility maximization | **Results:** Once decision is taken, a psychic motivation or tension to realize this decision arises, which causes the individual to act in order to neutralize the psychic tension<br><br>Pedestrian is subject to attractive or repulsive influences, approaching or avoiding certain individuals or things | |

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| | Turner and Penn (2000) | **Background:** Model of pedestrian behavior<br>**Objective:** to apply Gibson's ecological theory of human perception to pedestrian modeling; assumes the environment is a provider of possibilities where people move freely according to their vision | **Method:** Develop an experimental model and test on using existing movement data from the Tate Britian Gallery (Hillier et al, 1996) | **Results:**<br>• The actual level of movement and the predicted level using the experimental model have a correlation coefficient of .76.<br>• It is possible to emulate human movement patterns within a building environment by encoding Gibson's model of affordance in the context of 'natural movement'.<br>• Recognizes the ability to see and the impact of attractors in route choice and movement. | |
| | Peponis et al (1990) | | | **Results:**<br>Divert from the current heading when a new view allows you to see more space and/or activity | |
| | Zacharias (1997) | **Background:** The role of visual stimuli in the route choices of pedestrians is compared with the impact of layout, stall content, and the presence of other people in a public market.<br>**Objective:** to study the role of visual stimuli in impacting pedestrian behavior | **Method:** Pedestrian counts and videotape were used to determine the stability of the distribution of persons over time and the significance of turning movements within the market. | **Results:**<br>• Shoppers frequent reversals in movement were in the direction of heavier pedestrian density.<br>• Visual aspects of the stalls account for the great majority of all engagement with stalls. | |

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| **A visible walking surface (sidewalk, path) is a fundamental provision for the promotion of pedestrian movement** | Turner and Penn (2000) | **See above** | **See above** | **See above** | |
| | Gibson (1979) | | | **Results:**<br>'Natural vision' : humans move in a direction that will afford them the possibility for further movement<br><br>Walking surface affords movement | |
| | Peponis et al (1990) | **See above** | **See above** | *See above* | |
| **Connectivity (integration) at the site level increases pedestrian activity** | Hillier et al. (1998) | **Background:** Space Syntax analysis of redesign concepts for Trafalgar Square, London<br>**Objective:** to explore use of Space Syntax tools as a method for exploring design solutions | **Method:**<br>1. Pedestrian counts were taken on-site<br>2. Space Syntax computer analysis of Trafalgar Square was performed.<br>3. Space Syntax analysis was performed on alternative design solutions and compared to the existing data. | *Results:*<br>• There were strong correlations between the observed activity and the space syntax analysis. The analysis accounted for ¾ of the actual movement pattern.<br><br>• Space syntax analysis generated several key redesign ideas for Trafalgar Square. | |

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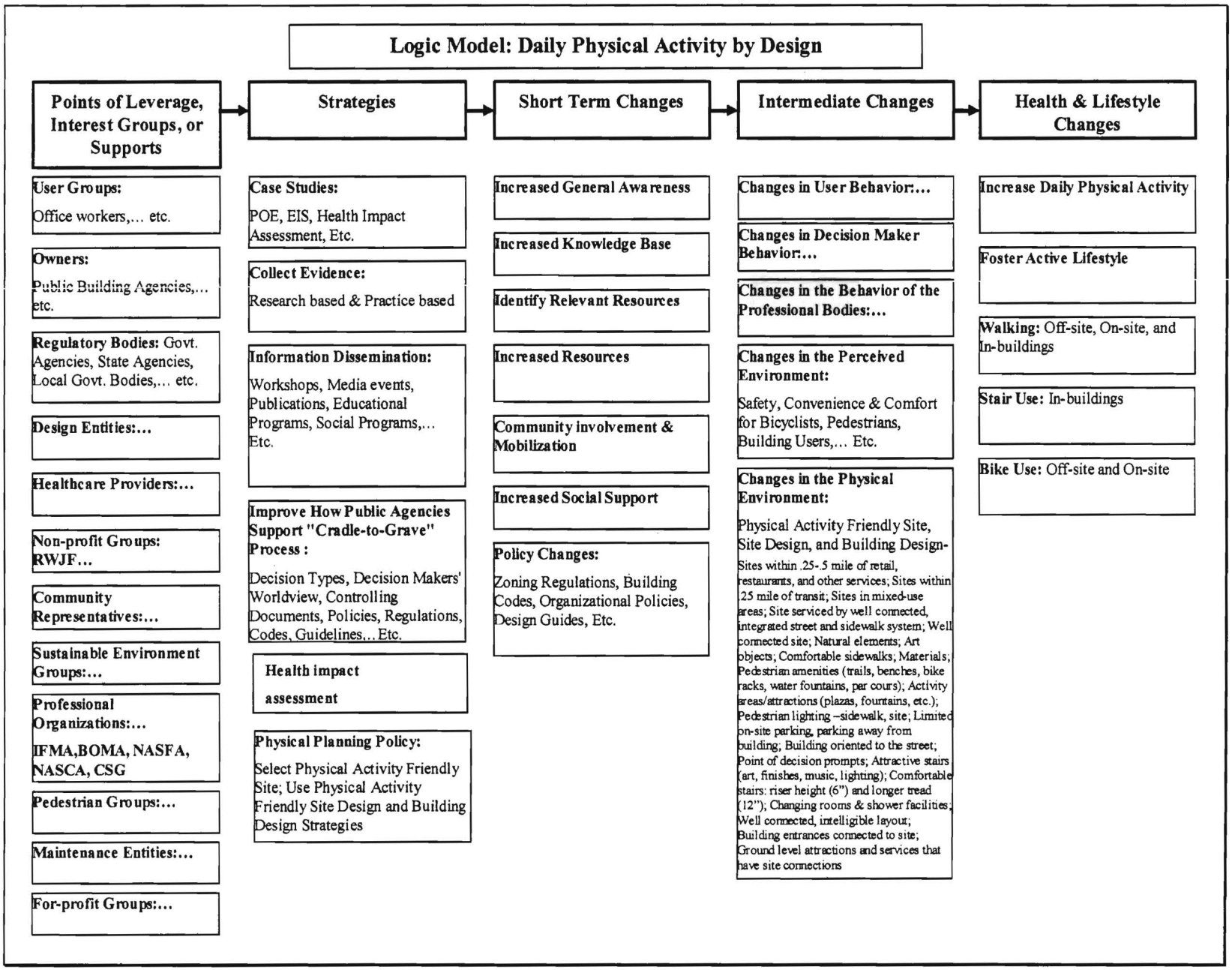
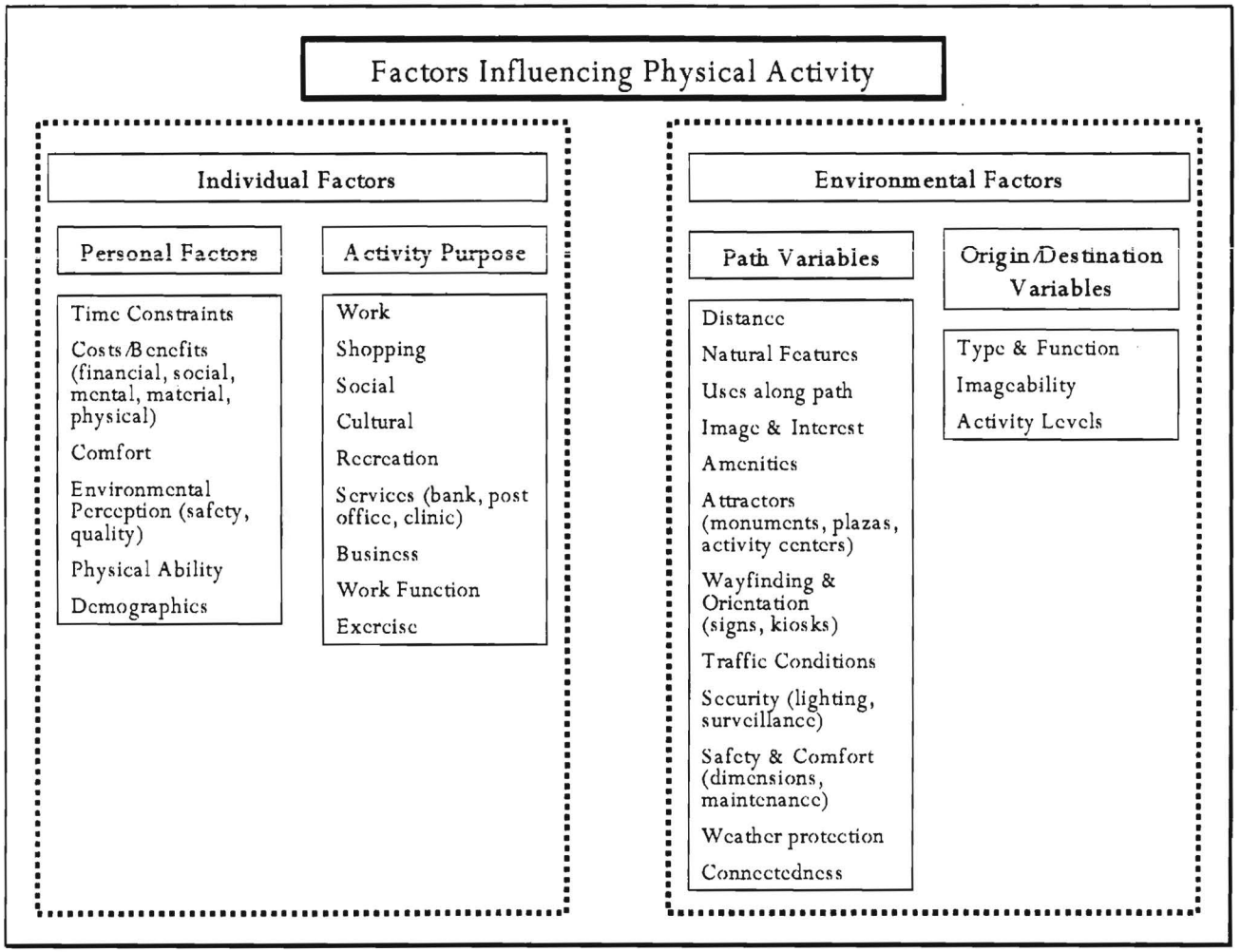
| **Building orientation impacts mode choice** | Baker (1993) | **Background:** How building orientation and setback of commercial structures influences vehicle miles of travel.<br>**Objective:** to understand how aspects of the built environment work together to influence automobile dependency and the link between building orientation and pedestrian orientation. | **Method:**<br>Data on commercial building age was used as a proxy measure for building orientation and setback. An index of proportion of commercial buildings built prior to 1950 in each of Portland's 400 traffic analysis zones was developed.<br><br>Existing household vehicle miles traveled (VMT) data was used. | *Results:*<br>An increase of 30% of the proportion of commercial buildings in the zone built prior to 1950 corresponded to a decrease of 1.3 miles in the average household daily VMT. | |
| | Rapoport (1977) | | | | |

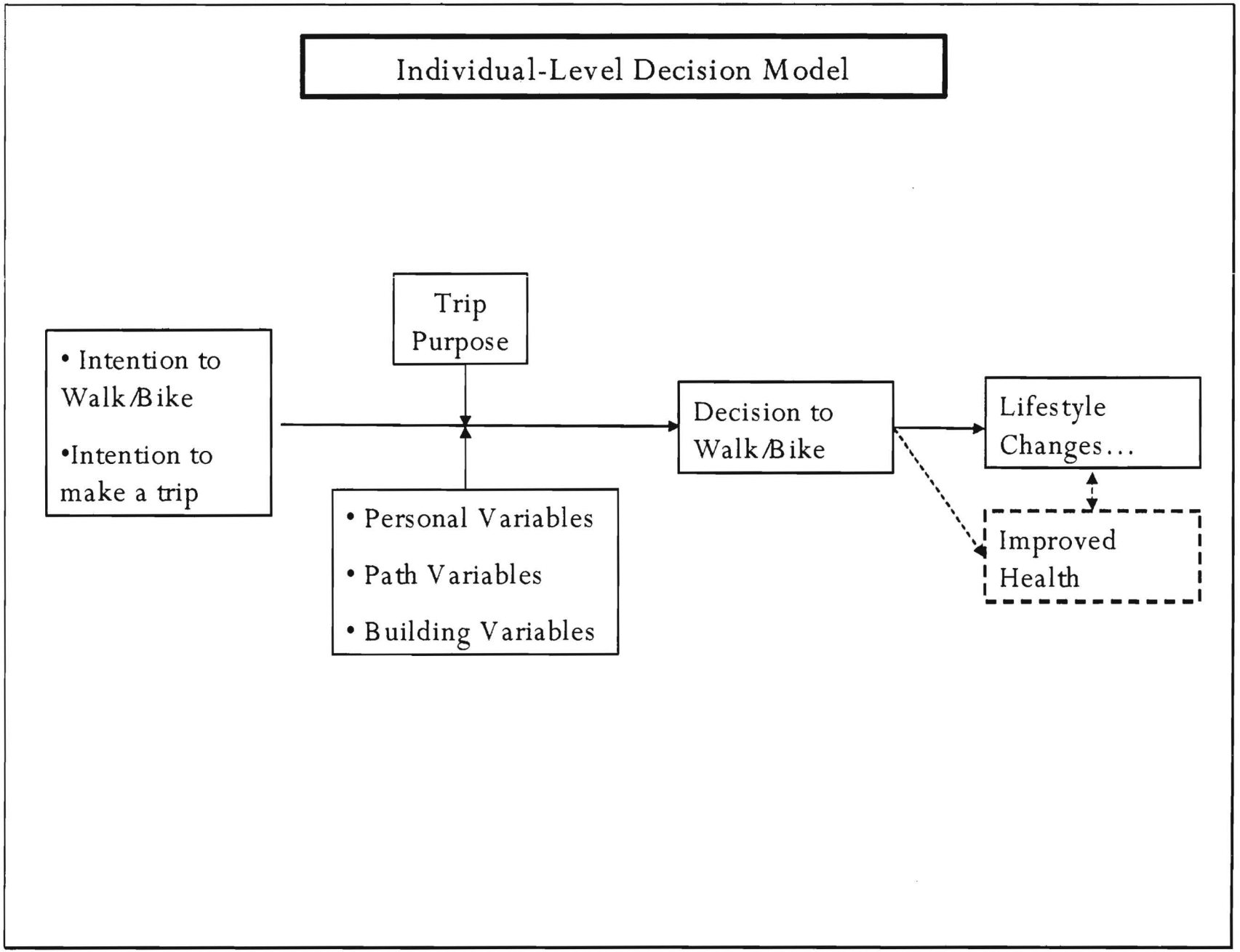
# Section III: Logic, Causal and Action Models

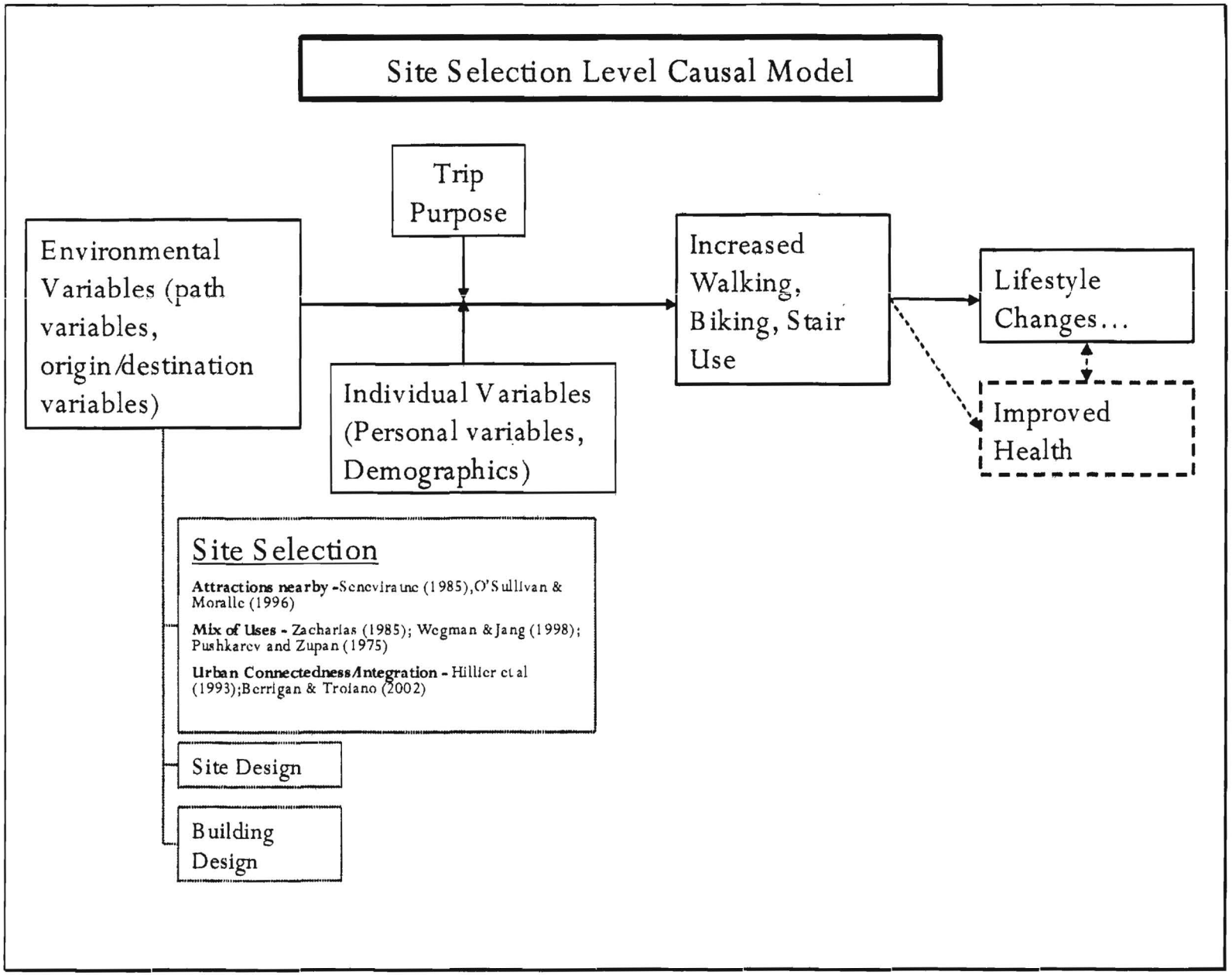
# Logic Model

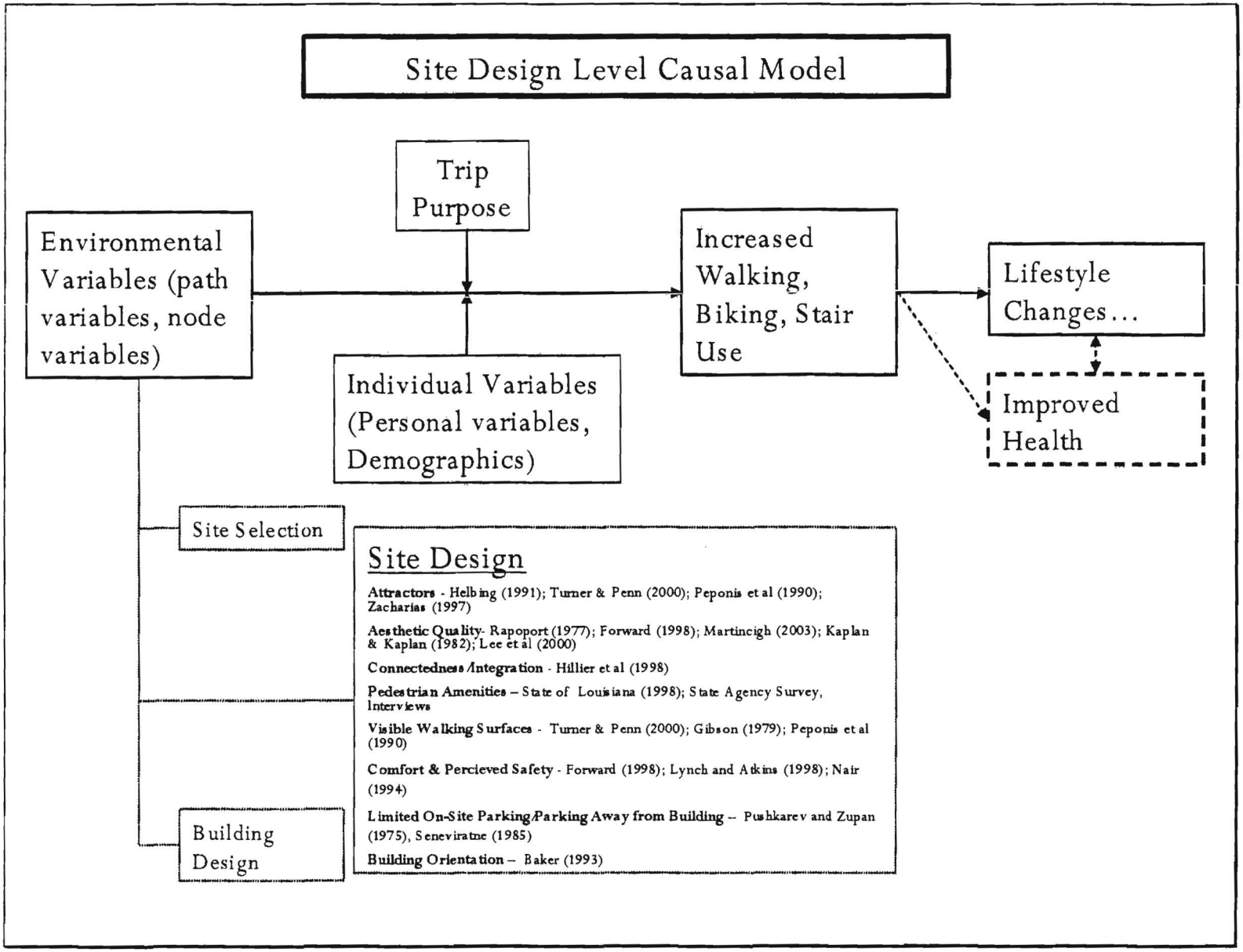

Logic Model: Daily Physical Activity by Design
Points of Leverage, Interest Groups, or Supports
Strategies
Short Term Changes
Intermediate Changes
Health & Lifestyle Changes
User Groups:
Office workers,... etc.
Owners:
Public Building Agencies,... etc.
Regulatory Bodies: Govt. Agencies, State Agencies, Local Govt. Bodies,... etc.
Design Entities:...
Healthcare Providers:...
Non-profit Groups: RWJF...
Community Representatives:...
Sustainable Environment Groups:...
Professional Organizations:...
IFMA,BOMA, NASFA, NASCA, CSG
Pedestrian Groups:...
Maintenance Entities:...
For-profit Groups:...
Case Studies:
POE, EIS, Health Impact Assessment, Etc.
Collect Evidence:
Research based & Practice based
Information Dissemination:
Workshops, Media events, Publications, Educational Programs, Social Programs,... Etc.
Improve How Public Agencies Support "Cradle-to-Grave" Process :
Decision Types, Decision Makers' Worldview, Controlling Documents, Policies, Regulations, Codes, Guidelines,.. Etc.
Health impact assessment
Physical Planning Policy:
Select Physical Activity Friendly Site; Use Physical Activity Friendly Site Design and Building Design Strategies
Increased General Awareness
Increased Knowledge Base
Identify Relevant Resources
Increased Resources
Community involvement & Mobilization
Increased Social Support
Policy Changes:
Zoning Regulations, Building Codes, Organizational Policies, Design Guides, Etc.
Changes in User Behavior:...
Changes in Decision Maker Behavior:...
Changes in the Behavior of the Professional Bodies:...
Changes in the Perceived Environment:
Safety, Convenience & Comfort for Bicyclists, Pedestrians, Building Users,... Etc.
Changes in the Physical Environment:
Physical Activity Friendly Site, Site Design, and Building Design-
Sites within .25-.5 mile of retail, restaurants, and other services; Sites within .25 mile of transit; Sites in mixed-use areas; Site serviced by well connected, integrated street and sidewalk system; Well connected site; Natural elements; Art objects; Comfortable sidewalks; Materials; Pedestrian amenities (trails, benches, bike racks, water fountains, par cours); Activity areas/attractions (plazas, fountains, etc.); Pedestrian lighting –sidewalk, site; Limited on-site parking, parking away from building; Building oriented to the street; Point of decision prompts; Attractive stairs (art, finishes, music, lighting); Comfortable stairs: riser height (6") and longer tread (12"); Changing rooms & shower facilities; Well connected, intelligible layout; Building entrances connected to site; Ground level attractions and services that have site connections
Increase Daily Physical Activity
Foster Active Lifestyle
Walking: Off-site, On-site, and In-buildings
Stair Use: In-buildings
Bike Use: Off-site and On-site

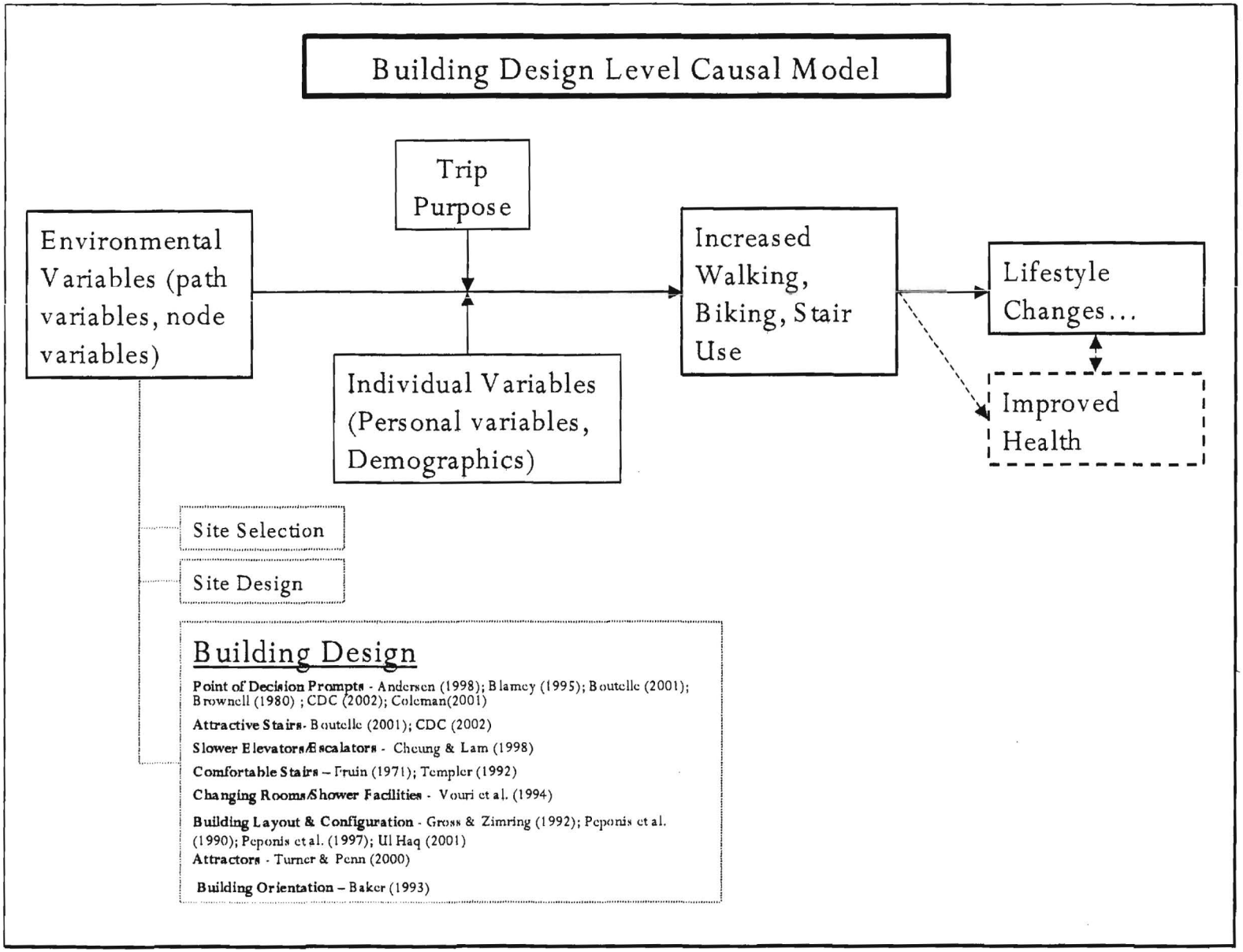
# Causal Models


Factors Influencing Physical Activity
Individual Factors
Personal Factors
Time Constraints
Costs/Benefits (financial, social, mental, material, physical)
Comfort
Environmental Perception (safety, quality)
Physical Ability
Demographics
Activity Purpose
Work
Shopping
Social
Cultural
Recreation
Services (bank, post office, clinic)
Business
Work Function
Exercise
Environmental Factors
Path Variables
Distance
Natural Features
Uses along path
Image & Interest
Amenities
Attractors (monuments, plazas, activity centers)
Wayfinding & Orientation (signs, kiosks)
Traffic Conditions
Security (lighting, surveillance)
Safety & Comfort (dimensions, maintenance)
Weather protection
Connectedness
Origin/Destination Variables
Type & Function
Imageability
Activity Levels

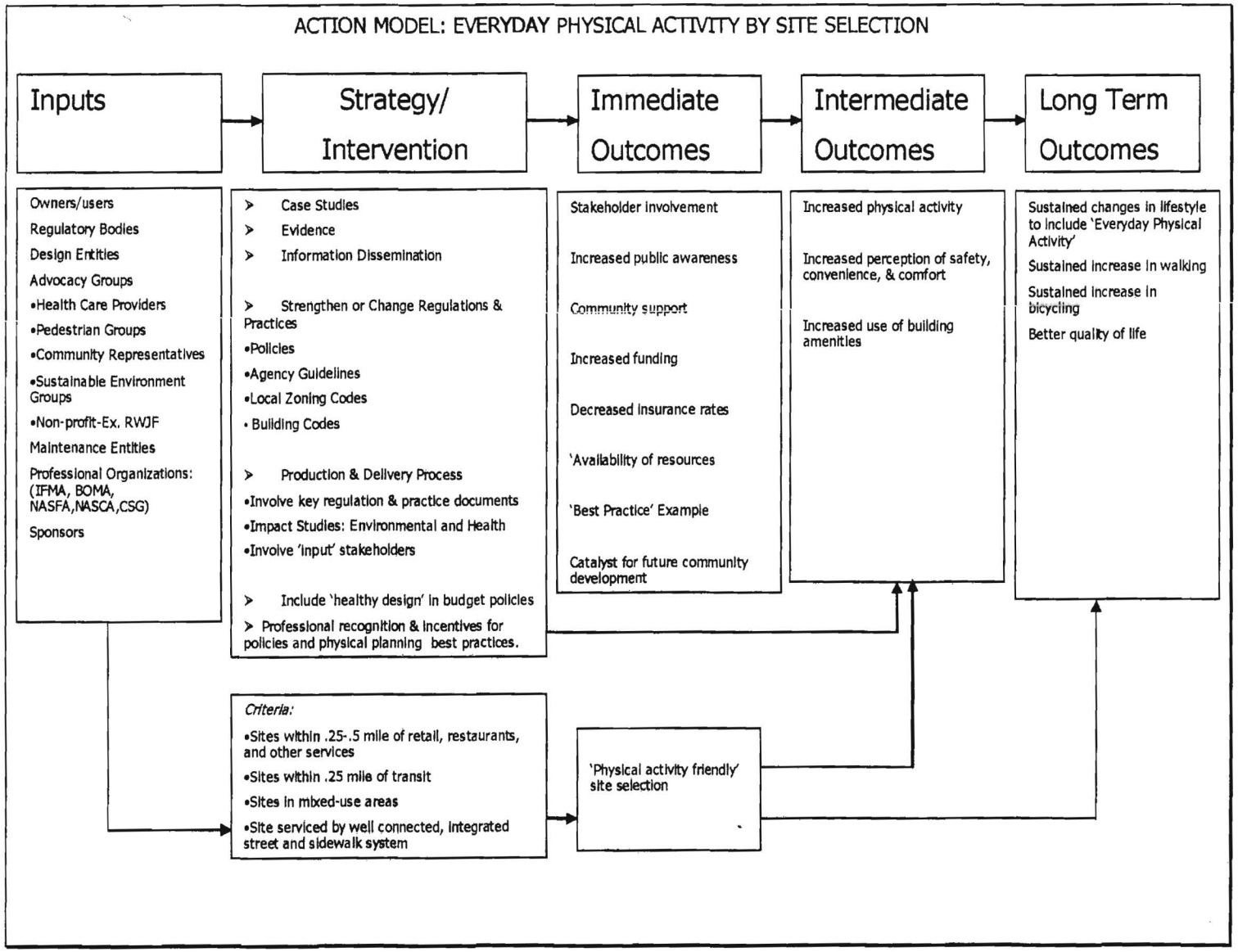

Individual-Level Decision Model
Trip Purpose
• Intention to Walk/Bike
•Intention to make a trip
• Personal Variables
• Path Variables
• Building Variables
Decision to Walk/Bike
Lifestyle Changes...
Improved Health

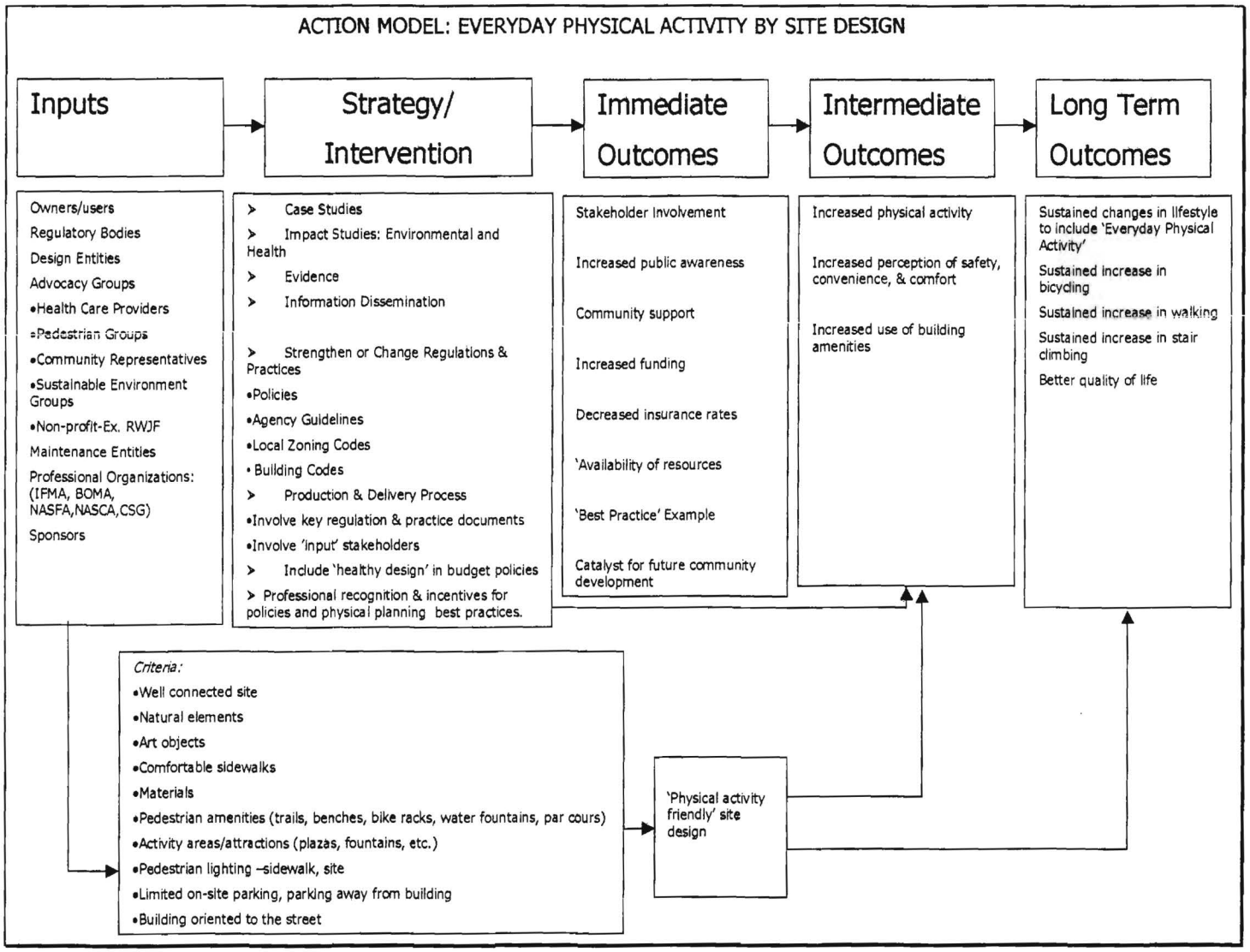

Site Selection Level Causal Model
Trip Purpose
Environmental Variables (path variables, origin/destination variables)
Individual Variables (Personal variables, Demographics)
Increased Walking, Biking, Stair Use
Lifestyle Changes...
Improved Health
Site Selection
Attractions nearby - Sencviratne (1985), O'Sullivan & Moralle (1996)
Mix of Uses - Zacharias (1985); Wegman & Jang (1998); Pushkarev and Zupan (1975)
Urban Connectedness/Integration - Hillier et al (1993); Berrigan & Troiano (2002)
Site Design
Building Design


Site Design Level Causal Model
Trip Purpose
Environmental Variables (path variables, node variables)
Increased Walking, Biking, Stair Use
Lifestyle Changes...
Improved Health
Individual Variables (Personal variables, Demographics)
Site Selection
Site Design
Attractors - Helbing (1991); Turner & Penn (2000); Peponis et al (1990); Zacharias (1997)
Aesthetic Quality- Rapoport (1977); Forward (1998); Martincigh (2003); Kaplan & Kaplan (1982); Lee et al (2000)
Connectedness /Integration - Hillier et al (1998)
Pedestrian Amenities – State of Louisiana (1998); State Agency Survey, Interviews
Visible Walking Surfaces - Turner & Penn (2000); Gibson (1979); Peponis et al (1990)
Comfort & Percieved Safety - Forward (1998); Lynch and Atkins (1998); Nair (1994)
Limited On-Site Parking/Parking Away from Building – Pushkarev and Zupan (1975), Seneviratne (1985)
Building Orientation – Baker (1993)
Building Design


Building Design Level Causal Model
Trip Purpose
Environmental Variables (path variables, node variables)
Increased Walking, Biking, Stair Use
Lifestyle Changes...
Improved Health
Individual Variables (Personal variables, Demographics)
Site Selection
Site Design
Building Design
Point of Decision Prompts - Andersen (1998); Blamey (1995); Boutelle (2001); Brownell (1980) ; CDC (2002); Coleman(2001)
Attractive Stairs- Boutelle (2001); CDC (2002)
Slower Elevators/Escalators - Cheung & Lam (1998)
Comfortable Stairs – Fruin (1971); Templer (1992)
Changing Rooms/Shower Facilities - Vouri et al. (1994)
Building Layout & Configuration - Gross & Zimring (1992); Peponis et al. (1990); Peponis et al. (1997); Ul Haq (2001)
Attractors - Turner & Penn (2000)
Building Orientation – Baker (1993)

# Action Models


ACTION MODEL: EVERYDAY PHYSICAL ACTIVITY BY SITE SELECTION
Inputs
Strategy/ Intervention
Immediate Outcomes
Intermediate Outcomes
Long Term Outcomes
Owners/users
Regulatory Bodies
Design Entities
Advocacy Groups
•Health Care Providers
•Pedestrian Groups
•Community Representatives
•Sustainable Environment Groups
•Non-profit-Ex. RWJF
Maintenance Entities
Professional Organizations: (IFMA, BOMA, NASFA,NASCA,CSG)
Sponsors
➢ Case Studies
➢ Evidence
➢ Information Dissemination
➢ Strengthen or Change Regulations & Practices
•Policies
•Agency Guidelines
•Local Zoning Codes
• Building Codes
➢ Production & Delivery Process
•Involve key regulation & practice documents
•Impact Studies: Environmental and Health
•Involve 'input' stakeholders
➢ Include 'healthy design' in budget policies
➢ Professional recognition & incentives for policies and physical planning best practices.
Stakeholder involvement
Increased public awareness
Community support
Increased funding
Decreased insurance rates
'Availability of resources
'Best Practice' Example
Catalyst for future community development
Increased physical activity
Increased perception of safety, convenience, & comfort
Increased use of building amenities
Sustained changes in lifestyle to include 'Everyday Physical Activity'
Sustained increase in walking
Sustained increase in bicycling
Better quality of life
Criteria:
•Sites within .25-.5 mile of retail, restaurants, and other services
•Sites within .25 mile of transit
•Sites in mixed-use areas
•Site serviced by well connected, integrated street and sidewalk system
'Physical activity friendly' site selection


ACTION MODEL: EVERYDAY PHYSICAL ACTIVITY BY SITE DESIGN
Inputs
Strategy/ Intervention
Immediate Outcomes
Intermediate Outcomes
Long Term Outcomes
Owners/users
Regulatory Bodies
Design Entities
Advocacy Groups
•Health Care Providers
•Pedestrian Groups
•Community Representatives
•Sustainable Environment Groups
•Non-profit-Ex. RWJF
Maintenance Entities
Professional Organizations: (IFMA, BOMA, NASFA,NASCA,CSG)
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➢ Case Studies
➢ Impact Studies: Environmental and Health
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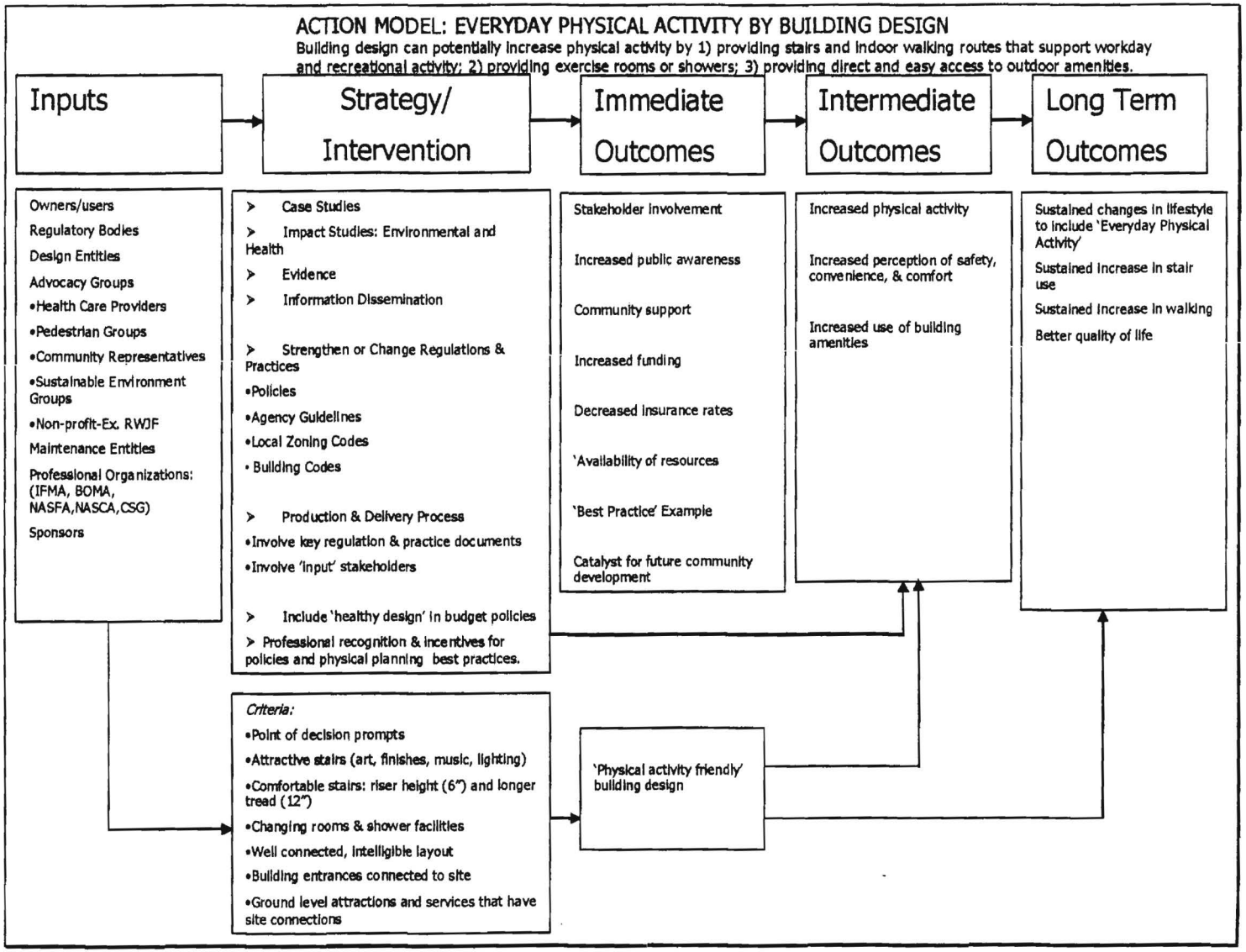
'Availability of resources
'Best Practice' Example
Catalyst for future community development
Increased physical activity
Increased perception of safety, convenience, & comfort
Increased use of building amenities
Sustained changes in lifestyle to include 'Everyday Physical Activity'
Sustained increase in bicycling
Sustained increase in walking
Sustained increase in stair climbing
Better quality of life
Criteria:
•Well connected site
•Natural elements
•Art objects
•Comfortable sidewalks
•Materials
•Pedestrian amenities (trails, benches, bike racks, water fountains, par cours)
•Activity areas/attractions (plazas, fountains, etc.)
•Pedestrian lighting –sidewalk, site
•Limited on-site parking, parking away from building
•Building oriented to the street
'Physical activity friendly' site design


ACTION MODEL: EVERYDAY PHYSICAL ACTIVITY BY BUILDING DESIGN
Building design can potentially increase physical activity by 1) providing stairs and indoor walking routes that support workday and recreational activity; 2) providing exercise rooms or showers; 3) providing direct and easy access to outdoor amenities.
Inputs
Strategy/ Intervention
Immediate Outcomes
Intermediate Outcomes
Long Term Outcomes
Owners/users
Regulatory Bodies
Design Entities
Advocacy Groups
•Health Care Providers
•Pedestrian Groups
•Community Representatives
•Sustainable Environment Groups
•Non-profit-Ex. RWJF
Maintenance Entities
Professional Organizations: (IFMA, BOMA, NASFA,NASCA,CSG)
Sponsors
➢ Case Studies
➢ Impact Studies: Environmental and Health
➢ Evidence
➢ Information Dissemination
➢ Strengthen or Change Regulations & Practices
•Policies
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•Local Zoning Codes
• Building Codes
➢ Production & Delivery Process
•Involve key regulation & practice documents
•Involve 'input' stakeholders
➢ Include 'healthy design' in budget policies
➢ Professional recognition & incentives for policies and physical planning best practices.
Stakeholder involvement
Increased public awareness
Community support
Increased funding
Decreased insurance rates
'Availability of resources
'Best Practice' Example
Catalyst for future community development
Increased physical activity
Increased perception of safety, convenience, & comfort
Increased use of building amenities
Sustained changes in lifestyle to include 'Everyday Physical Activity'
Sustained increase in stair use
Sustained increase in walking
Better quality of life
Criteria:
•Point of decision prompts
•Attractive stairs (art, finishes, music, lighting)
•Comfortable stairs: riser height (6") and longer tread (12")
•Changing rooms & shower facilities
•Well connected, intelligible layout
•Building entrances connected to site
•Ground level attractions and services that have site connections
'Physical activity friendly' building design

# Building Delivery Action Models

# ACTION MODEL: BUILDING DELIVERY

## Needs Assessment

Defined by customer department, agency, or program

*Inputs*

Space requirements

Outdated facility

Environmental Issues

Funding availability

Programmatic changes

Changes in technology

*P.A.F.E. Impediments:*

- Lack of clear definition of problem
- Lack of clear goals (short and long term)
- No policy for physical activity affordances
- Lack of input from design professionals or consultants

*Intervention Strategies:*

- Budget for physical activity friendly environment and related case studies, evidence collection, and information dissemination

## Budget Preparation

Depends on agency (client department, finance department, or central building agency)

*Inputs*

Needs assessment

Prior project experience

*P.A.F.E. Impediments:*

- Budget is outlined prior to detailed programming and design development
- Overall budget is fixed in general categories

*Intervention Strategies:*

- Budget for physical activity friendly environment and related case studies, evidence collection, and information dissemination

## Site Acquisition

*Inputs*

Alternate sites

Environmental Impact Analysis

Local planning/zoning

Site costs

*P.A.F.E. Impediments:*

- No Health Impact Analysis or P.A.F.E. criteria for site selection

*Intervention Strategies:*

Health Impact Assessment

Community Involvement

System for information dissemination

Site selection criteria to include P.A.F.E. requirements

## Design

*Inputs*

- Design Process: programming, schematic design, design development, construction documents
- Design guidelines (agency)
- Building Codes
- Zoning and local planning
- Client needs assessment/programming

*P.A.F.E. Impediments:*

- Competing interests among user groups and stakeholders
- ADA/Code requirements
- Local planning/zoning

*Intervention Strategies:*

PAFE Design guidelines

Policies promoting PAFE design

PAFE interest groups

Dissemination of information for public support, awareness, guidelines

PAFE consultant involvement

Incentives for best practices

PAFE certification (similar to LEED)

Finding common ground with ADA, LEED, PAFE

## Construction

*Inputs*

- Construction documents
- Value Engineering
- Change orders
- Schedule
- CM process
- Construction cost

*P.A.F.E. Impediments:*

- Construction cost overruns
- Lack of quality control
- Change orders
- Value engineering

*Intervention Strategies:*

PAFE quality control and monitoring requirements

PAFE consultants involvement in value engineering

Designer's involvement in construction process

# ACTION MODEL: BUILDING DELIVERY

## Building Operations

*Inputs*

Facility Operations

Human Resource Operations

*P.A.F.E. Impediments:*

•No physical activity focus or programs for employees

•Employee benefits funding

•No clear understanding of the relationship between physical activity and benefits to employers

•Minimum maintenance and operations budget – no budget for PAFE

*Intervention Strategies:*

•HR PAFE policies:

-focus on health; employee satisfaction & benefit

-health counselor

-information dissemination

-physical activity incentives

-physical activity programs

-exercise and changing room policies and hours

•Building operations

-point of decision prompts

-wayfinding and signage

-security & surveillance

-lighting

## Renovate/ Demolish/ Dispose

*Inputs*

Needs assessment

Facility assessment

Prior project experience

*P.A.F.E. Impediments:*

•No PAFE assessment

•User needs for PAFE not established

•Budget

*Intervention Strategies:*

•Add PAFE assessment programs

•Identify opportunities to implement PAFE guidelines

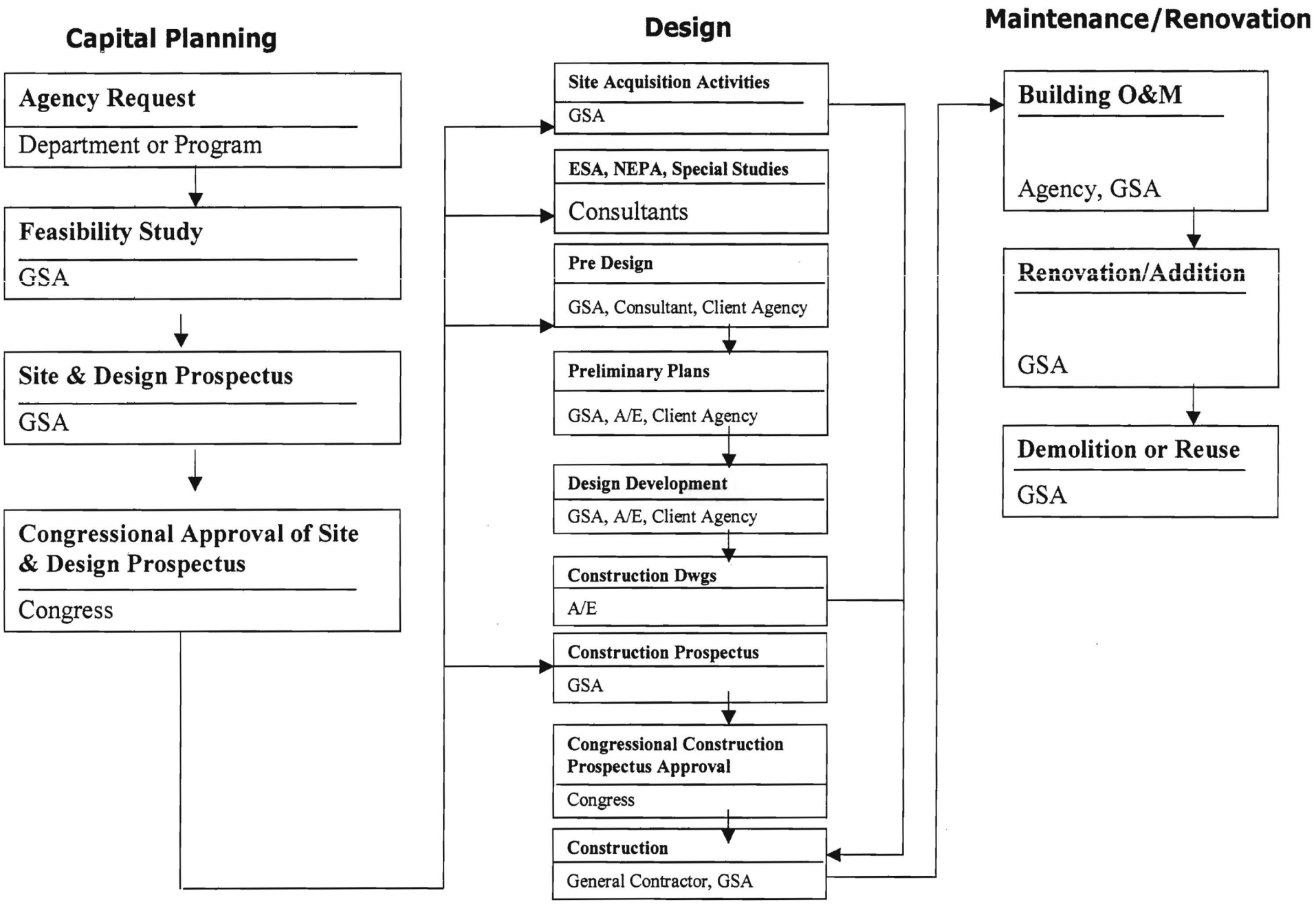
•Evidence collection/POE

•Reuse of the site for PAFE activities

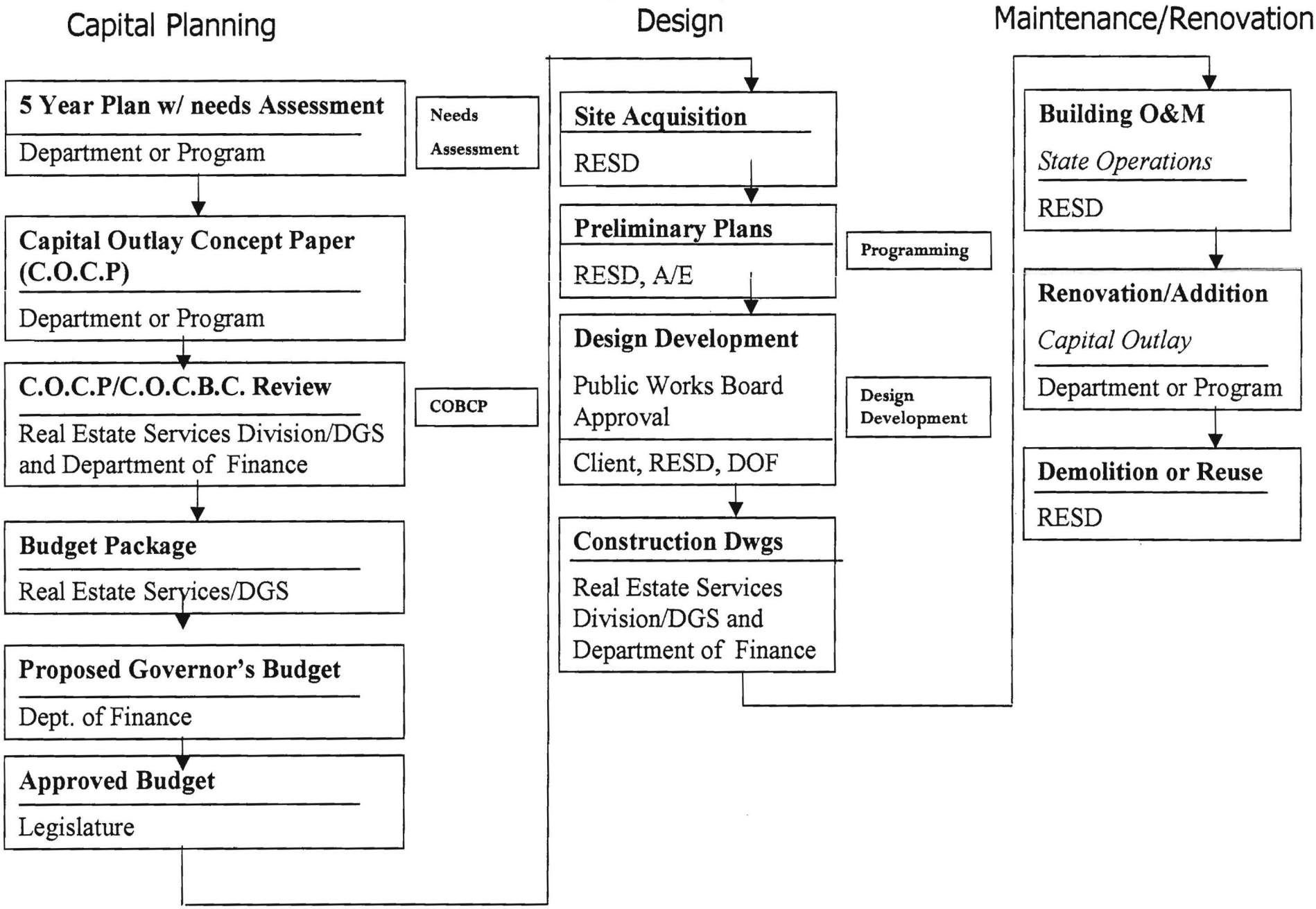
# Section IV: Appendices

# A. The Building Delivery Processes of Three Public Agencies

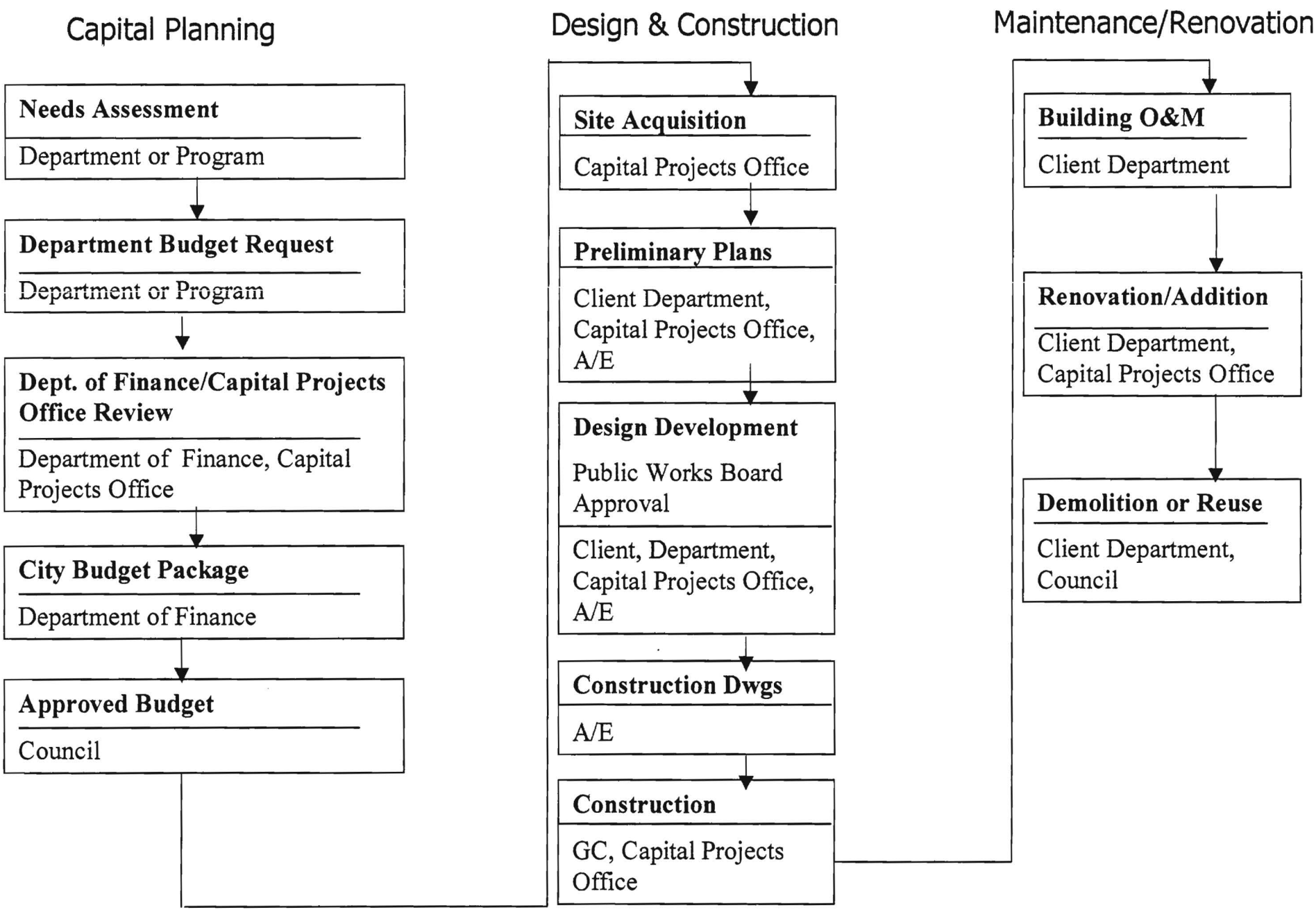
# United States Department of General Services (GSA)
# Building Delivery Process



# California Department of General Services (DGS)
# Building Delivery Process



# City of Atlanta Building Delivery Process



## B. The Results of a Survey of the Leaders of State Public Buildings Service Departments on Issues of Physical Activities and Public Buildings and Spaces

This study, conducted by the Georgia Institute of Technology and funded by the Robert Wood Johnson Foundation, is aimed at understanding how considerations of health, and particularly increased physical activity, can be introduced into public buildings. As part of this project, we are surveying leaders in public building development. Please consider your agency's process for building delivery including site selection, site design, and building design when responding. The survey should take less than 10 minutes to complete. Your input on this issue is valuable and a copy of the results will be emailed to you.

1) What State do you work for?

2) What is the name of your State agency?

3) Please list your title or role:

4) Please consider the **site selection** process. How often are the following considered?

| | Almost always considered | Usually | Sometimes considered | Seldom | Never considered |
|---|---|---|---|---|---|
| Connection to offsite pedestrian or bike routes | 14.29% | 14.29% | 23.81% | 38.10% | 9.52% |
| Proximity to public transit | 28.57% | 9.52% | 42.86% | 19.05% | 0.00% |
| proximity to shops or other amenities | 0.00% | 14.29% | 28.57% | 38.10% | 19.05% |
| Proximity to residential areas | 9.52% | 19.05% | 23.81% | 33.33% | 14.29% |
| Proximity to other government agencies | 52.38% | 38.10% | 4.76% | 4.76% | 0.00% |
| Proximity to offsite parking facilities | 33.33% | 52.38% | 4.76% | 9.52% | 0.00% |
| Availability of property | 90.48% | 9.52% | 0.00% | 0.00% | 0.00% |
| Cost of property | 80.95% | 14.29% | 4.76% | 0.00% | 0.00% |

5) Who is responsible for policy or guidelines about **site selection** issues in your agency?

6) Is there a specific guideline or policy document related to **site selection** issues? If so, what is the title and how can a copy be obtained? ***Yes:* 29%** ***No:* 71%**

7) Please consider the **site design** process. How often are the following considered?

| | Almost always considered | Usually | Sometimes considered | Seldom | Never considered |
|---|---|---|---|---|---|
| walking or biking trails on-site | 14.29% | 9.52% | 19.05% | 47.62% | 9.52% |
| building orientation and connection to sidewalks and trails | 38.10% | 19.05% | 33.33% | 9.52% | 0.00% |
| attractors that may encourage people to walk outside | 9.52% | 23.81% | 28.57% | 28.57% | 9.52% |
| pedestrian amenities such as benches, lighting, etc. | 23.81% | 47.62% | 23.81% | 4.76% | 0.00% |
| location/amount of on-site parking | 76.19% | 23.81% | 0.00% | 0.00% | 0.00% |
| ADA/accessibility requirements | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| cost of on-site ammenities | 76.19% | 23.81% | 0.00% | 0.00% | 0.00% |

8) Who is responsible for policy or guidelines about **site design** issues in your agency?

9) Is there a specific guideline or policy document related to **site design** issues? If so, what is the title and how can a copy be obtained? ***Yes:* 43%** ***No:* 57%**

10) Please consider **building design**. How often are the following considered?

| | Almost always considered | Usually | Sometimes considered | Seldom | Never considered |
|---|---|---|---|---|---|
| Changing rooms/showers in the workplace | 9.52% | 23.81% | 38.10% | 19.05% | 9.52% |
| Exercise rooms in the workplace | 0.00% | 4.76% | 38.10% | 23.81% | 33.33% |
| Stairs that could be used for regular movement between floors | 71.43% | 19.05% | 4.76% | 4.76% | 0.00% |
| Minimizing elevator use | 9.52% | 42.86% | 28.57% | 14.29% | 4.76% |
| Wayfinding signs to the stairs | 42.86% | 28.57% | 9.52% | 19.05% | 0.00% |
| Signs promoting stair use | 4.76% | 19.05% | 28.57% | 19.05% | 28.57% |
| Connections to outside walking opportunities | 19.05% | 14.29% | 38.10% | 19.05% | 9.52% |
| ADA/accessibiltiy requirements | 100.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Costs of exercise/shower facilities | 33.33% | 23.81% | 23.81% | 9.52% | 9.52% |

11) Who is responsible for policy or guidelines about **building design** in your agency?

12) Is there a specific guideline or policy document related to **building design**? If so, what is the title and how can a copy be obtained? ***Yes:*** **38%** ***No:*** **62%**

13) In what ways does your agency incorporate design/performance criteria into site selection, site design, or building design? (i.e., streetscape requirements, sidewalk requirements, building setback requirements)

| | |
|---|---|
| **14.3%** | written design guidelines |
| **0%** | policy/vision statements |
| **14.3%** | code requirements |
| **38.1%** | dialogue between designers and agency |
| **0%** | no requirements |
| **33%** | other |

Does your agency have formal or informal requirements for participation by employees or local community members in the design process?
10% yes, formal requirements
20% yes, informal requirements
55% yes, both formal and informal
15% no requirements

14) In what ways has your agency addressed employee health and/or physical activity at or around the workplace?

- **Building clean air - yoga, exercise and stair climbing programs**
- **Designated smoking areas have been established outside the buildings; lactation rooms are provided in every building; scales and blood pressure machines are frequently provided in break areas. Bike racks are provided outside buildings.**
- **Health Awareness, Education and Motivation Program. State departments also encourage personnel to walk within the state campus trail system during daily breaks.**
- **Environmental concerns for IAQ drive most of the issues. Little has been done, except for parks and recreational facilities or institutional facilities such as shools and correctional facilities.**
- **When feasible, locker/shower facilities are provided in new state buildings.**
- **Worker is encouraged to participate in health and/or physical activities on their own. There is very little equipment or space provided to State employees.**
- **Family friendly guidelines**
- **Enviroment studies**
- **No Smoking in the building: Walking up or down one flight of stair: Side walk for walking at lunch time**
- **Just beginning a Capitol Complex master plan which does address some minimal health or physical activity to benefit employees.**
- **Commonhealth program**
- **Manager of Healthy life styles works to improve individuals and work conditions**
- **Wellness Programs through Department of Civil Service and Community Health**
- **Limited to seminars**
- **Sower/locker facilities provided in state office buildings. Other buildings are designed to fit the spcific program needs of the facility.**
- **Our facility has an indoor and outdoor walking paths and promotes their use. No other exercise facility on campus.**

*15)* Have these programs or intervention strategies been successful? (yes or no) -- *Please explain.*

*(A sample of responses are included)*

**Very hard to evaluate as employees are on their own to exercise.**
**Yes, but nothing innovative.**
**Yes, people are very concious about their health and they do take advantage of the available facilities.**
**Yes. Many people use the walking course each day.**
**Not sure**

16) Would additional information about the importance of health, walking and biking be helpful to decision-makers?

Yes 71.4%
No 28.6%

17) Which types of information would be helpful?
Documented case studies 18.6%
Design guidelines 30.2%
Executive Summary 23.3%
Reference material 14%
Briefing paper 14%
Other 0%

19) Who should this information be directed toward?
State agency 47.8%
local officials 0%
designers 8.7%
owner/building occupants(ie. agency) 17.4%
all of the above 26.1%

20) Do you have any additional comments or questions pertaining to this research?
(The following are a sample of responses)

- Design considerations are almost always driven by budget. Often, amenities are not considered because of budget.
- Conflicts between health considerations and ADA/MAAB
- Often, buildings are constructed on already existing campuses and not on newly acquired sites

21) May we contact you if we have a brief follow-up question?
N/A

22) Would you like to recieve a summary of the findings of this survey?
***Yes:* 65%** ***No:* 35%**

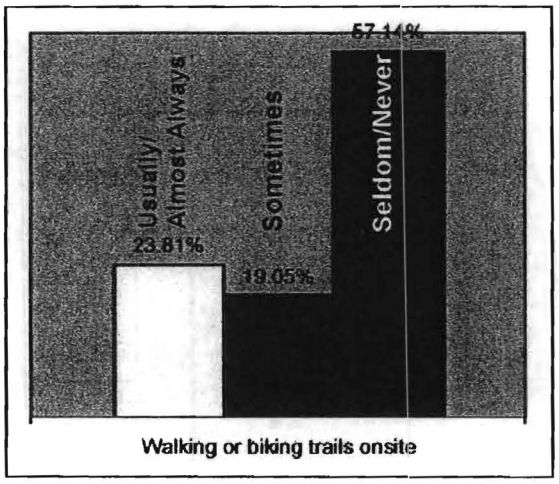
23) If you would like more information about this research or would be willing to be contacted for a follow-up interview, please provide your contact information: N/A

**Thank you for taking the time to answer this survey!**

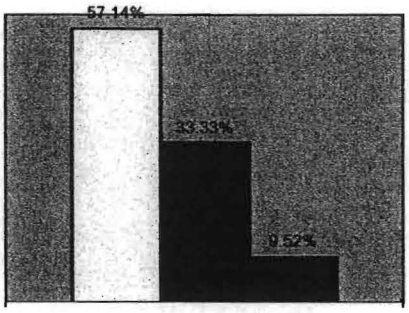
# Survey Results Charts

# Site Design

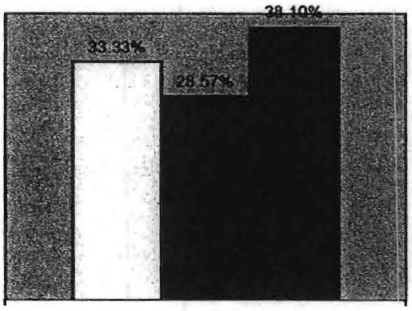
Results of Questionnaire



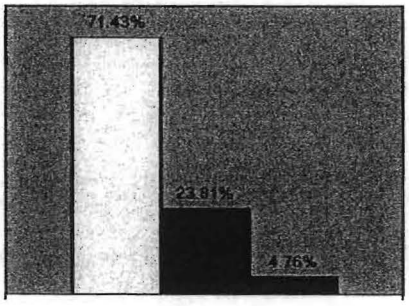

Walking or biking trails onsite



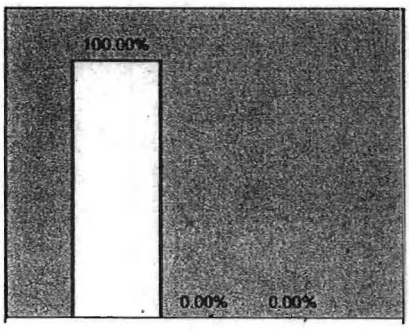

Building orientation and connection to sidewalks and trails



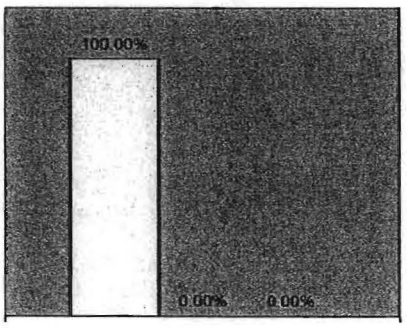

Attractors that may encourage people to walk outside



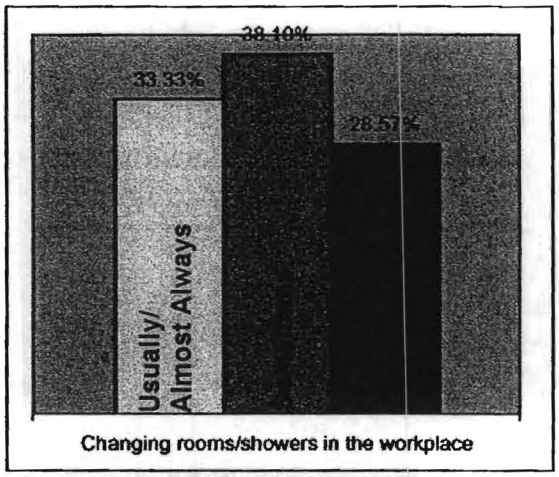

Pedestrian ammenities such as benches and lighting



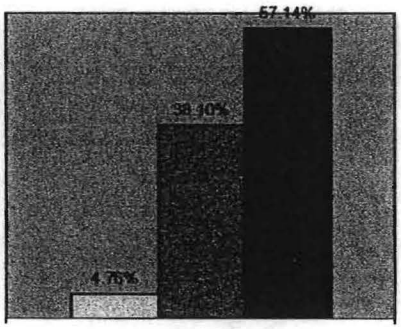

Location/amount of onsite parking



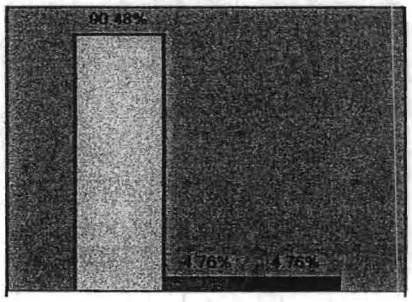

ADA/accessibility requirements



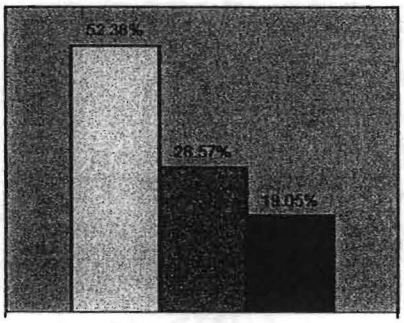

Changing rooms/showers in the workplace



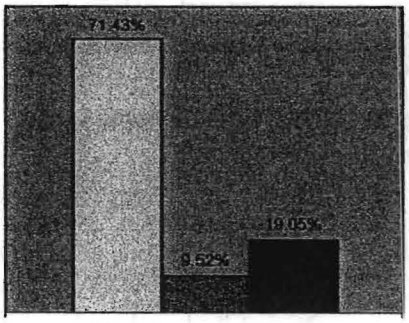

Exercise rooms in the workplace



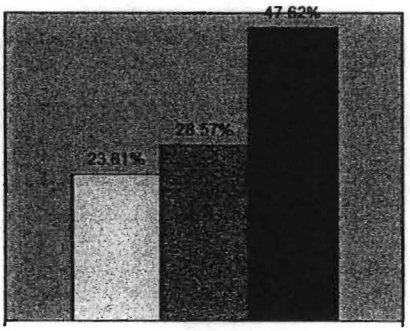

Stairs that could be used for regular movement between floors



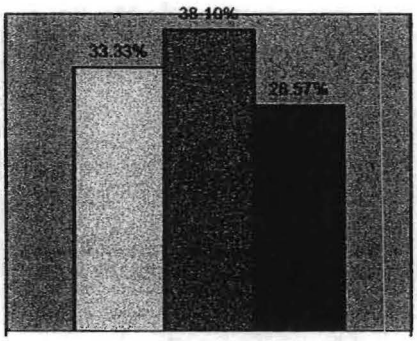

Minimizing elevator use



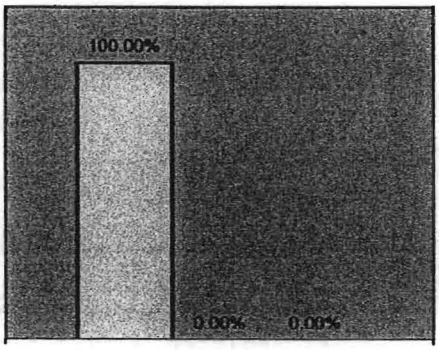

Wayfinding signs to the stairs



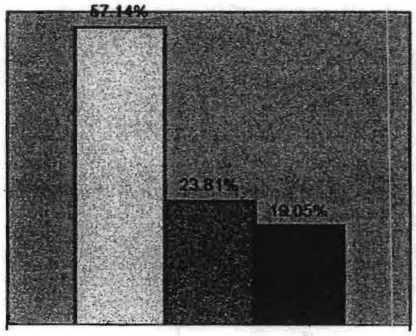

Signs promoting stair use



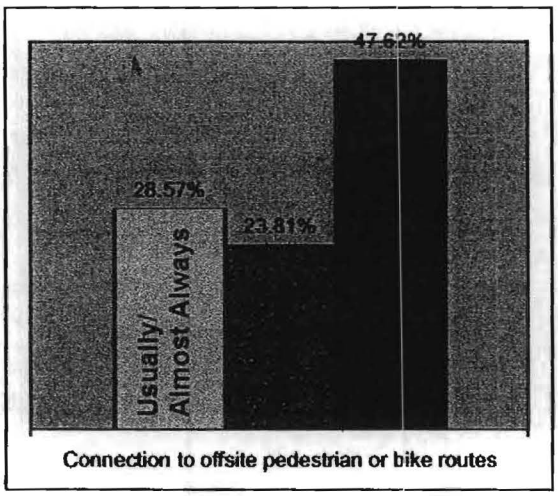

Connections to outside walking opportunities



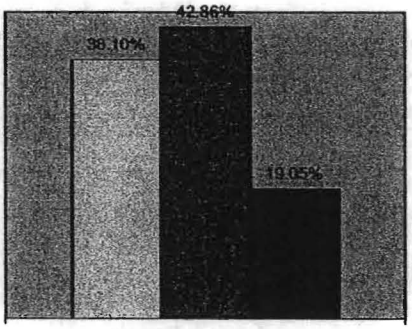

ADA/accessibiltiy requirements



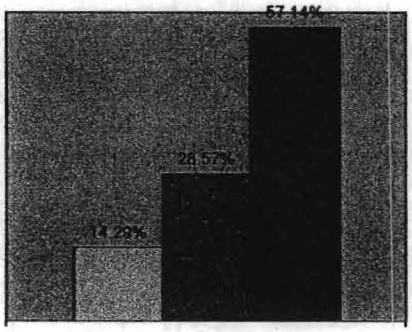

Costs of exercise/shower facilities



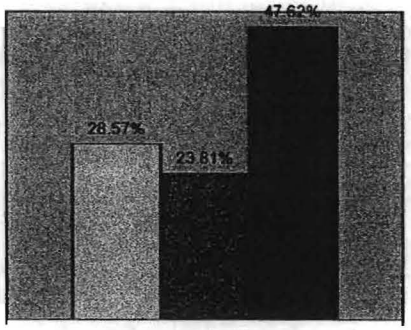
Connection to offsite pedestrian or bike routes



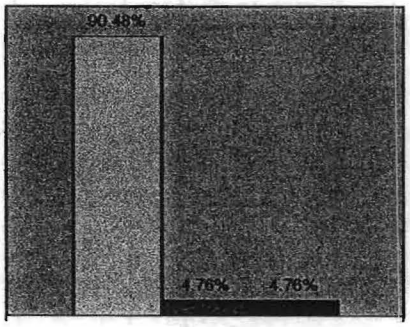
Proximity to public transit



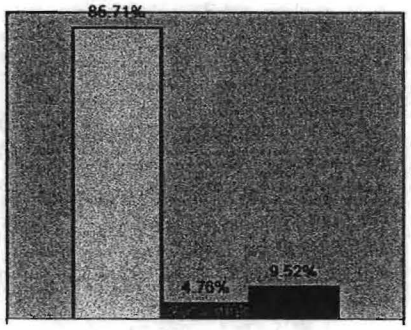
Proximity shops or other amenities



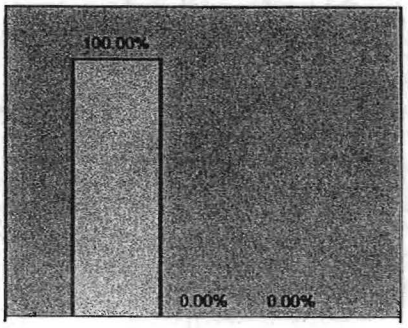
Proximity to residential areas



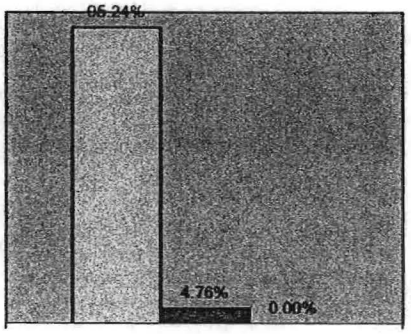
Proximity to other government agencies



Proximity to offsite parking facilities



Availability of property



Cost of property

# C. State Real Estate Agencies

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| **Alaska Dept. of Administration**<br>Mike Miller, Commissioner<br>PO Box 110200<br>Juneau AK 9811-0200<br>Phone:907-465-4429<br>FAX:907-465-2135<br>http://www.state.ak.us/local/akpages/ADMIN/home.htm | **Department of General Services**<br>Vern Jones, Chief Procurement Officer<br>vern_jones@admin.state.ak.us<br>http://www.state.ak.us/admin/dgs/ | *Description/Notes:*<br>▪ Alaska's central organization for public buildings<br>▪ 4 major services are Purchasing, Leasing, State Facilities, Property and Central Mail<br>▪ 3 minor services are State Forms, Juneau Parking and Accounting.<br>▪ 2002 National Association of State Purchasing Officials (NASPO) awarded the Alaska DGS for its Distance Learning procurement training. |
| **Arizona Department of Administration**<br>Betsy Bayless, Director<br>100 North 15th Avenue, Suite 401<br>Phoenix, AZ 85007<br>Phone: 602-542-0034<br>FAX: 602-542-2199<br>http://www.adoa.state.az.us | **General Services Division**<br>Warren Whitney, Assistant Director<br>602-542-1701<br>warren.whitney@ad.state.az.us<br>http://www.adoa.state.az.us/agency/dir.asp | *Mission:* The ADOA mission is to provide effective and efficient support services to enable government agencies, state employees and the public to achieve their goals.<br><br>*Description/Notes:*<br>General Services Division provides construction and facilities management services to all buildings owned and operated by ADOA. |
| **Arkansas Building Authority**<br>Robert Laman, Director<br>501 Wood Lane Dr., Suite 600<br>Little Rock, AR 72201<br>Phone:501-682-1833<br>Fax: 501-682-5589<br>http://www.asbs.com | **Construction Division**<br>**Leo Munford,** Construction Administrator<br>501-682-5577<br>Fax 501-682-5253<br>lmunford@asbs.state.ar.us<br>www.asbs.com/construction | *Description/Notes:*<br>▪ Arkansas Building Authority, (formerly Arkansas State Building Services), was created by Act 716 of 1975.<br>▪ ASBS is guided and governed by the Arkansas Building Authority Council.<br>▪ ABA Minimum Standards and Criteria (available online) The act authorizes ABA to obtain sites; to construct, equip, maintain and operate public buildings; to authorize the leasing of property for and by state agencies; to assist state agencies in architectural and engineering needs; and to assist other state agencies in the |

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| | | construction and maintenance of public buildings.<br>▪ ABA owns and manages approximately 1.1 million square feet of office space within the areas of the State Capitol Complex, downtown Little Rock, and Fort Smith. State agencies occupy 99% of the premises<br><br>The following is compiled from a March 2002 NAFSA survey<br>▪ Approximate yearly budget=140,000,000<br>▪ Appx. Number of projects at any one time =96 open projetcts subject to inspection by SBS staff<br>▪ Size of organization=33 |

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| **California Department of General Services**<br>J. Clark Kelso, Director<br>The Ziggurat<br>707 Third Street, Eighth Floor<br>P.O. Box 989052<br>West Sacramento, CA 95798-9052<br>Phone: 916-376-5012<br>FAX: 916-376-5018<br>http://www.dgs.ca.gov/default.htm | **Real Estate Services**<br>Kenn Kojima, Deputy Director<br>916.376.1900<br>ken.kojima@dgs.ca.gov<br>http://www.buildings.dgs.ca.gov/default.htm | *Mission:* We are a diversified full-services real estate organization dedicated to fulfilling our customers' facility and real property needs.<br><br>*Description/Notes:*<br>▪ Real Estate Services Division (RESD) provides comprehensive real estate services to all state agencies. Comprised of six operational branches, RESD conducts asset planning, property sales and acquisition, project management, architectural and engineering services, leasing and planning, property management and building maintenance, construction management, energy efficiency and supply programs, and environmental assessments.<br>▪ The DGS website provides an informative and intensive overview of the department's responsibilities and goals which clearly state their support of public buildings. |
| **State of Colorado**<br>Department of Personnel and General Support Services<br>Troy Eid, Executive Director<br>1600 Broadway Ste. 1030<br>Denver, CO 80202<br>Phone: 303-866-6559<br>FAX: 303-866-2102<br>http://www.colorado.gov/dpa/ | **State Buildings Programs**<br>Larry Friedberg, Director/State Architect<br>303-866-3079<br>larry.friedberg@state.co.us<br>http://www.colorado.gov/dpa/dfp/sbrep/ | *Description/Notes:*<br><br>▪ Department of Personnel and General Support Services focuses on establishing policies and procedures and providing oversight of the state's capital construction process, (including controlled maintenance) at each state agency and institution of higher education<br><br>▪ State Buildings and Real Estate Programs integrates statutory oversight responsibilities with comprehensive design, construction and real estate expertise in order to provide assistance and training to state agencies and institutions relating to general-funded capital construction |

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| | | and all aspects of real estate transactions. |
| **Delaware Dept. of Admin. Services**<br>Gloria Homer, Secretary of Administration<br>410 Federal Street, Suite 100<br>Dover, DE 19901<br>Phone: 302-739-3613<br>FAX: 302-739-6704<br>http://www.state.de.us/das/ | **Division of Facilities Mmg.**<br>Bob Furman, Director<br>302 739-5644<br>rfurman@state.de.us<br>http://www2.state.de.us/dfm/dirofc/index.asp | *Mission:* The division's mission is to support the activities of state government by accommodating state agencies' space needs, maintaining state facilities in good condition, and by implementing programs and initiatives to ensure each facility is energy efficient, architecturally accessible and environmentally safe. The division's mission is to also ensure that all demolition, renovation, and new construction of state buildings is completed in a timely fashion and meets the latest standards of construction technology, building and life safety codes and space standards through plan review, technical oversight and assistance.<br><br>*Description/Notes:*<br>▪ Focus on environmental issues<br>▪ Facility Design Standards : http://www2.state.de.us/dfm/profsrv/psstands.asp<br>▪ Design Standards emphasize compliance with local ordinances for bicycle racks, screening, trees, etc.<br>▪ Design Standards for sidewalks, bicycle/jogging paths, and landscaping |
| **State of Georgia Building Authority**<br>Ray Crawford, Interim Director<br>1 Martin Luther King Jr. Drive<br>Atlanta, Georgia 30334<br>Phone: (404) 656-3253<br>Fax: (404) 657-0337<br>ray.crawford@gw.gba.state.ga.us<br>http://www.state.ga.us/gba/ | **Executive Division**<br>Paul Melvin, Deputy Director<br>(404) 656-3253<br>paul.melvin@gw.gba.state.ga.us<br>http://www.state.ga.us/gba/ | *Mission: Georgia Building Authority . . . providing the highest quality property management and other related services for the citizens of Georgia.*<br><br>*Description/Notes:*<br>▪ The Georgia Building Authority (GBA) is a state-funded Authority responsible for all services associated with the management of 51 buildings |

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| | | and various facilities located in the Capitol Hill Complex in Atlanta, Georgia, including the Georgia State Capitol building and the Governor's Mansion in northeast Atlanta. GBA provides maintenance, renovations, housekeeping, landscaping, food service, event catering, recycling, parking, child care, van pools, and access control services to state employees housed in GBA-managed facilities.<br><br>▪ In 1951, the State Office Building Authority (SOBA) was created to manage the development of all buildings and properties owned by the state of Georgia. In 1967, the SOBA was reorganized and renamed the Georgia Building Authority (GBA).<br>▪ 1996 GBA established a Facilities Planning section<br>▪ Organizational chart available online: http://www.state.ga.us/gba/org_chart.html |
| **Hawaii Dept. of Accounting and General Services**<br>Raymond Sato, Comptroller<br>1151 Punchbowl St., Rm. 412<br>Honolulu, HI 96813<br>Phone: 808-586-0400<br>FAX: 808-586-0775<br>http://www.hawaii.gov/dags | **Division of Public Works**<br>Erik Nishimoto<br>Gina Ichiyama<br>Gina.e.ichiyama@hawaii.gov<br>808-586-0472<br>http://www.hawaii.gov/dags/dags_web/pwd/pwd.shtml | *Description/Notes:*<br>The Department of Accounting and General Services, commonly known as DAGS, is headed by the State Comptroller, who concurrently serves as the director of DAGS. The department is responsible for managing and supervising a wide range of State programs and activities. These include:<br>• the centralized accounting and auditing system.<br>• planning, design, and constructions of capital improvement projects.<br>• maintenance and operations of state buildings and grounds.<br>• archives, records management, and central records storage.<br>• parking and automotive management. |

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| | | • survey of state lands. |
| **Idaho Department of Administration**<br>Pam Ahrens, Director<br>650 West State Street<br>Boise, ID 83720<br>Ph: 208-332-1824<br>Fax: 208-334-2307<br>http://www2.state.id.us/adm/ | **Design and Construction**<br>Larry Osgood, Director<br>Phone: (208) 332-1900<br>Fax: (208) 334-4031<br>losgood@adm.state.id.us<br>http://www2.state.id.us/adm/pubworks/construction/index.html | *Mission:*<br>*Contracting the design and construction of public works projects for state owned facilities for numerous state agencies. We are committed to providing efficient and cost effective services to our client agencies.*<br><br>*Description/Notes:*<br>▪ Facilities management and architecture/engineering departments.<br>▪ Focus on energy conservation. |
| **Indiana Dept. of Administration**<br>David Perlini, Commissioner<br>IGC South, Rm. W479<br>402 W. Washington St.<br>Indianapolis, IN 46204-2263<br>Phone: 317-232-3043<br>FAX: 317-233-5022<br>http://www.ai.org/idoa/index.html | **Facilities Management**<br>John White, Director of Facilities<br>(317) 233-4269<br>jwhite@idoa.state.in.us<br>http://www.ai.org/idoa/facility/index.html | *Description/Notes:*<br>▪ The agency manages and maintains state-owned facilities and equipment and administers the State's motor pool fleet, procurement and professional service contracting, minority and women owned business programs, IT functions and public works projects.<br>▪ "Greening the Government" initiative |
| **Iowa Department of Administrative Services**<br>Mollie Anderson, Director<br>Grimes State Office Building<br>400 East 14th St.<br>Des Moines, Iowa 50319-0150<br>Phone: 515-281-3351<br>FAX: 515-242-6450<br>http://www.state.ia.us/government/dgs/index.html | **General Services Enterprise/Design & Construction**<br>Dean Ibsen, Administrator of Design & Construction<br>Dean.Ibsen@dgs.state.ia.us | *Mission:*<br>*To assist state agencies in facilities design, construction, and management by providing or managing those professional services required by our customers in the performance of their respective missions.*<br><br>*Description/Notes:*<br>The Design and Construction Division provides the following services:<br><br>• Architecture and Engineering |

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| | | • Infrastructure Planning<br>• Restoration Painting<br>• Utilities Management<br>  ○ Life Cycle Costing<br>  ○ Energy Conservation<br>  ○ Lighting and Controls<br><br>48.5 million square feet of state-owned<br>10.5 million square feet supported by General Services. |

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| **Kansas Dept. of Administration**<br>Howard R. Fricke, Secretary of Administration<br>1000 SW Jackson<br>Suite 500<br>Topeka, KS 66612-1300<br>Phone: 785-296-3011<br>Fax: 785-296-2702<br>http://da.state.ks.us/ | **Facilities Planning & Mgmt.**<br>Stuart Leighty, Director<br>(785) 296-8899<br>stuart.leighty@da.state.ks.us | *Mission: Division of Facilities Management centrally administers assigned assets: leases, real property, transportation. The Division of Facilities Management provides stewardship of assigned assets in support of state citizens, state officials, state agencies and state employees. This Division is committed to achieving excellent results through the use of best practices and results-oriented teamwork.*<br><br>*Description/Notes:*<br>The Division of Facilities Management manages state buildings and property; leases and assigns space; and prepares analyses, reports, and records for the Department of Administration and its customers. The division emphasizes cost-effective, responsible and responsive operations.<br>▪ currently maintains over 4 million square feet of building space.<br>▪ currently provides Architectural and engineering support for new construction projects, remodels existing office space, maintains the cleanliness and general maintenance of each building, as well as providing space planning support for each agency. |
| **Louisiana Division of Administration**<br>Mark C. Drennen, Commissioner of Administration<br>Capitol Annex Bldg.<br>P.O. Box 94095<br>Baton Rouge, LA 70804-9095<br>Phone: 225-342-7000<br>FAX: 225-342-1057<br>http://www.doa.state.la.us/doa/doa.htm | **Office of State Buildings**<br>William J. Wilson, Superintendent<br>(225) 219-4800<br>Bill Morrison, Facility Planning Manager<br>bmorris@doa.state.la.us<br>http://www.doa.state.la.us/bg/bg.htm | *Mission: Facility Planning & Control mission*<br>*To assist in management of the state's finances and fixed assets by administration of the comprehensive capital outlay budget process and implementation of a comprehensive centralized facility management program.*<br>*To provide appropriate owned or leased facilities to house the operations of state government and meet the space and functional needs of each* |

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| | | *user agency.*<br><br>*Description/Notes:*<br>Implementation of a comprehensive, centralized facility management / asset management program is essential for the proper management of the State's finances and fixed assets. Centralization is necessary in order to: develop and implement uniform standards for capital projects; establish equitable, uniform space standards; maintain an accurate, comprehensive database of the state's fixed assets; avoid costly duplication of facility management systems; and provide access to a common data base for multiple users.<br>The mission shall be accomplished in a manner that: is professional, efficient, cost effective, and responsive; insures that the buildings are safe, functional, energy efficient, environmentally comfortable, aesthetically pleasant, secure from unlawful actions, and properly maintained; and provides the appropriate physical environment which meets the needs of each user agency.<br><br>▪ 36 buildings totaling over three and a half million square feet.<br><br>The following is compiled from a March 2002 NAFSA survey<br>▪ Approximate yearly budget=200,000,000<br>▪ Appx. Number of projects at any one time =375<br>Size of organization=33 |

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| **Maine Bureau of General Services**<br>Elaine Clark, Director<br><br>777 State House Station<br>Burton Cross Building, 4th Floor<br>Augusta, ME 04333-0077<br>Phone: 207-624-7360<br>FAX: 207-287-4039<br>http://www.state.me.us/bgs/bgs.htm | **Professional Services Division**<br>Peter Glasow, Architect<br>Peter.Glasow@Maine.gov<br>207-624-7347 | *Description/Notes:*<br>The Bureau of General Services Professional Services' mission is to provide technical and fiscal oversight/approval to the construction, major alteration or repair of buildings or public work either owned or leased by the State of Maine including public schools (in excess of $25,000). The division is charged with providing the development of an overall long range public improvement program for all department and agencies of the State Government in order to coordinate and present recommendations |
| **Maryland Dept. of General Services**<br>Boyd Rutherford, Secretary<br>301 W. Preston St., Rm. 1401<br>Baltimore, MD 21201-2377<br>Phone: 410-767-4960<br>FAX: 410-333-5480<br>http://www.dgs.state.md.us/ | **Facilities Management Design & Construction**<br>Thomas R. Genetti, Assistant Secretary for Facilities Planning, Design, & Construction<br>tom.genetti@dgs.state.md.us<br>(410) 767-4214<br>Construction & Inspection Division<br>Jean Band<br>Jean.band@dgs.state.md.us<br>410-767-4265<br>http://www.dgs.state.md.us/overview/const2.htm | *Description/Notes:*<br>▪ The Maryland Department of General Services supports State and local government agencies by providing a full spectrum of construction, facilities operations, procurement, real estate, and surplus property services.<br>▪ DGS supervises and coordinates the design and construction of a wide range of public building projects totaling hundreds of millions of dollars annually.<br>▪ DGS operates and maintains multi-agency state facilities including the State Office Centers in Annapolis and Baltimore. It assesses State facilities and manages facility renewal funds.<br>▪ DGS master-plans the use of space in State-owned and leased facilities. It oversees all real estate transactions, except for those associated with transportation projects, and conducts all lease negotiation and enforcement actions. |
| **Massachusetts Executive Office for Admin. and Finance** | **Bureau of State Office Buildings Division of Capital Asset** | *Mission: The Bureau's mission is to utilize a diverse workforce to carry out the statutory* |

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| Eric Kriss, Secretary<br>State House Rm. 373<br>Boston, MA 02133<br>Phone: 617-727-2040<br>FAX: 617-727-2779<br>http://mass.gov/portal/index.jsp?pageID=aghome&agid=eoaf | **Management**<br>David Berkowitz, Director of Design<br>David.berkowitz@dcp.state.ma.us<br>617-727-4030<br>One Ashburton Place<br>Boston, MA 02108<br>http://www.state.ma.us/cam/ | *responsibilities of Massachusetts General Laws, Chapter 8; to provide a safe, secure workplace for customers, assuring that all who enter Bureau facilities have a pleasant business environment and can transit common areas without incident; and to efficiently maintain mechanical systems and buildings within budget, recognizing that they function as places of business, museums of art and history, and sites of public congregation.*<br><br>*DCAM: Our mission is to serve the citizens of the Commonwealth by providing professional and comprehensive services to state agencies in the fields of public-building design, construction and real estate.* |

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| **Michigan Dept. of Mgmt. & Budget**<br>Mitch Irwin, Director<br>320 S Walnut<br>P.O. Box 30026<br>Lansing, MI 48933<br>Phone: 517-373-0666<br>FAX: 517-241-8715<br>http://www.michigan.gov/dmb | **State Building Authority**<br>Debbie Roberts, Manager<br>(517) 241-2432<br>robertsd1@michigan.gov<br>http://www.michigan.gov/dmb/ | *Description/Notes:*<br>▪ Department of Management and Budget is an interdepartmental service and management agency responsible for providing financial management, property management, capital facility development, procurement, retirement and related benefits, employee benefits programs, accounting and payroll functions, demographic functions, geographic information, systems development, and office support services to state agencies.<br>▪ The State Building Authority (SBA) was organized under P.A. 183 of 1964, as amended. The purpose of the authority is to acquire, construct, furnish, equip, renovate, buildings and equipment for the use of the state, including public universities and community colleges. It is governed by a five-member Board of Trustees appointed by the governor, with advice and consent of the Senate.<br>▪ The Authority is authorized to issue and sell bonds and notes for acquisition and construction of facilities and State equipment in an aggregate principal amount outstanding not to exceed $2.7 billion. |
| **Minnesota Dept. of Administration**<br>Brian Lamb, Commissioner<br>200 State Admin. Bldg.<br>50 Sherburne Ave.<br>St. Paul, MN 55155<br>Phone: 651-296-8261<br>FAX: 651-297-7909<br>http://www.admin.state.mn.us/ | **State Architect's Office**<br>Heidi Meyers, Director<br>(651) 296-4645<br>heidi.myers@state.mn.us<br>http://www.dsbc.admin.state.mn.us/ | *Mission: State Architect's Office mission -- to improve the physical facilities of Minnesota Government.*<br><br>Description/Notes:<br>▪ The Real Estate Management Division and the State Architect's Office are divisions of the Minnesota Dept. of Administration.<br><br>▪ The Real Estate Management Division |

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| | | (REM) provides property acquisition and disposal services, facility/space planning services, and facility leasing/ management services.<br><br>▪ State Architect's Office (SAO) provides Professional architectural, engineering and construction resources to develop, build and preserve state facilities. |
| **Mississippi Dept. of Finance & Admin.**<br>Gary Anderson, Executive Director<br>P O Box 267<br>Jackson MS 39205<br>Phone : 601-359-3403<br>FAX: 601-359-2470<br>http://www.dfa.state.ms.us/ | **Bureau of Building**<br>Don McCrackin, Director of Bureau of Building<br>mccracd@dfa.state.ms.us<br>http://www.dfa.state.ms.us/building/NEWMAIN.html | Description/Notes:<br><br>▪ The primary function of the Bureau is to properly administer funds appropriated to it by the Legislature in accordance with state laws, regulations and established procedures in a business-like manner. The Bureau also has the power to acquire, hold and dispose of real and personal property for the State of Mississippi.<br><br>▪ Some responsibilities include: contracting with Architects, Engineers, Contractors, Suppliers and others; approving plans, specifications, studies and sites for buildings; expending appropriated funds within the legal intent; serving as liaison with the federal government in various building programs, office repair and renovation, capital improvement and preplanning needs for state Institutions, Agencies and Departments; reviewing repair and renovation requests and making allocations based on the priority of requests and inspections of the sites |

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| **Missouri Office of Administration**<br>Jacquelyn D. White, Commissioner<br>State Capitol Rm. 125<br>P. O. Box 809<br>Jefferson City, MO 65102<br>Phone: 573-751-1851<br>FAX: 573-751-1212<br>http://www.oa.state.mo.us/<br>Div. Of Facilities Management | **Div. Of Design and Construction**<br>Linward "Lin" Appling, Director<br>applil@mail.oa.state.mo.us<br>(573) 751-1034<br>**Div. Of Design and Construction**<br>http://www.oa.mo.gov/fm/<br>Randall G. Allen, AIA, Director<br>573-751-4174<br>allenr@mail.oa.state.mo.us<br>http://www.oa.mo.gov/dc/dcinet/home.htm | Description/Notes:<br><br>As one of eight divisions within the Office of Administration, the State's administrative and control office, the Division of Design and Construction is responsible for design, construction, renovation and repair of state facilities, and reviews all requests for appropriations for capital improvements.<br><br>Responsible for:<br>- developing and reviewing plans and specifications for state construction projects<br>- selecting consulting architects and engineers<br>- bidding and contracting for construction work<br>- managing construction projects<br>- overseeing the expenditure of capital improvements appropriations<br>- conducting in-house design<br>- providing guidelines, information and recommendations for capital improvement budgets<br>- assisting state departments and institutions with building and renovation problems<br>- conducting studies related to energy and other facility issues<br><br>The following is compiled from a March 2002 NAFSA survey<br>▪ Approximate yearly budget=200,000,000<br>▪ Appx. Number of projects at any one time =195<br>Size of organization=115 |
| **Montana Dept. of Administration**<br>Scott Darkenwald, Director | **General Services Department**<br>http://www.discoveringmontana.com/d | *Mission: Serve and assist all agencies and citizens of the State of Montana in the design* |

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| Mitchell Bldg., Room 155<br>1310 E. Lockey<br>P. O. Box 200110<br>Helena, MT 59620-0110<br>Phone: 406-444-2032<br>FAX: 406-444-2812<br>http://www.discoveringmontana.com/doa/doa/index.htm | oa/gsd/css/default.asp<br>Arch. And Engineering Div.<br>SCOTT DARKENWALD, Director<br>(406) 444-3104<br>sdarkenwald@state.mt.us<br>http://www.discoveringmontana.com/doa/aed/css/default.asp | *and construction of quality facilities, repairs and alterations of existing facilities, and planning for their governmental and university system needs.*<br><br>*Description/Notes:*<br>Present a single, comprehensive, and prioritized plan for allocating state resources for the purpose of capital construction, repairs and alterations of state-owned facilities and to prepare the Long Range Building Program (LRBP) for presentation to the Legislature. Conduct the architect/engineer selection process.<br>▪ Advertise, bid, and award construction contracts within applicable state statutes.<br>▪ Administer construction contracts with contractors.<br>▪ Provide budgeting and accounting services for the Architecture and Engineering (A&E) Division and the Long Range Building Program (LRBP).<br>▪ Administer contracts with architects and engineers.<br>▪ Provide plan and specification reviews for state agencies and units of the university system.<br>▪ Provide planning services to all state agencies, state-run institutions, and the university system for the LRBP.<br>▪ Provide architectural services for state agencies, state run institutions, and the university system on projects under $75,000 and on repair and maintenance projects without limit.<br>▪ Provide mechanical engineering services. |

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| **Nebraska Dept. of Administrative Services**<br>Lori McClurg, Director<br>State Capitol, Rm. 1315<br>P.O. Box 94664<br>Lincoln, NE 68509<br>Phone: 402-471-2331<br>FAX: 402-471-4157<br>http://www.das.state.ne.us/ | **Building Division**<br>Ken Fougeron, Administrator<br>(402)471-3191<br>kfougero@notes.state.ne.us<br>http://www.das.state.ne.us/building/ | *Mission: To aggressively pursue excellence in planning, providing, managing and maintaining property, facilities and space in support of state government operations.*<br><br>*Description/Notes:*<br>▪ The State Building Division is responsible for providing centralized procurement, operation, maintenance, security and management of office space and independent review, analysis, and oversight of capital construction projects to insure that the most appropriate facilities are provided for the efficient functioning of state government.<br><br>▪ Total square footage: 4,590,136<br>▪ 277 Buildings<br>▪ Estimated Replacement cost: $358,994,949 |
| **Nevada Dept. of Administration**<br>John Comeaux, Director<br>209 E. Musser St.<br>Blasdel Building, Rm. 200<br>Carson City, NV 89710-4298<br>Phone: 775-684-0222<br>http://dadmin.state.nv.us/ | **Property Management**<br>Cindy Edwards, Property manager<br>cedwards@govmail.state.nv.us<br>http://bandg.state.nv.us/<br>(775) 684-1800 | *Mission: Department of Administration Mission - Assist state agencies to achieve their missions and goals by providing efficient and effective customer-driven support services.* |
| **New Hampshire Dept. of Administrative Services**<br>Donald Hill, Commissioner<br>State House Annex, Rm. 120<br>25 Capitol St.<br>Concord, NH 03301-6312<br>Phone: 603-271-3201<br>FAX: 603-271-6600<br>http://www.admin.state.nh.us/ | **Division of Plant and Property Management,**<br>**Bureau of General Services**<br>Gary W. Deragon, Administrator<br>(603) 271-3148<br>gderagon@admin.state.nh.us<br>http://www.admin.state.nh.us/gens/index.html | *Description/Notes:*<br>▪ The Bureau of General Services provides services in three main areas: general maintenance of state owned office buildings, telecommunications and the Interstate Vending Program. The Bureau of General Services maintains twenty-two state owned facilities totaling 1.2 million square feet of general office space. The goal of the Bureau is to provide |

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| | | support services to state agencies and maintain state owned buildings in a proper and cost effective manner. This is accomplished with a blend of in house and contracted personnel and services.<br>▪ The Bureau of Planning and Management provides services to state agencies in interior space planning, and the management of operating leases. |
| **New Jersey Department of the Treasury**<br>**Division of Property Management & Construction**<br>Edmund F. Jenkins, Director<br>33 W. State St., 9th Fl<br>PO Box 34<br>Trenton, NJ 08625-0034<br>Phone: 609-292-4330<br>FAX: 609-984-8495<br>http://www.state.nj.us/treasury/gsa/gsahome.htm | **Division of Property Management & Construction**<br>Richard Flodmand, Asst. Deputy Director of Contracting<br>Richard.flodmand@treas.state.nj.us<br>609-984-9701<br>http://www.state.nj.us/treasury/dpmc/mission.html | *Mission: In order to effectively fulfill its responsibilities, the Division of Property Management & Construction has defined its Mission Statement as follows:*<br><br>o *To conduct the business of government ethically, honestly and without favoritism and to protect the interests of the taxpayers of New Jersey.*<br>o *To provide tenants of State-owned and leased space with a clean, safe and comfortable work environment.*<br>o *To ensure the most cost-effective property leases and to acquire and dispose of real property holdings in accordance with applicable statutes.*<br>o *To integrate and coordinate all functions related to space planning, acquisition, occupancy and facilities management.*<br><br>*Description/Notes:*<br>The functions of the Division of Property Management & Construction are defined under N.J.S.A. 52:18A et seq. In summary, the Division is responsible for the following major functions: |

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| | | ○ Operation and maintenance of State-owned facilities in the Capitol Complex<br>○ Leasing of office and warehouse space<br>○ Sale of State-owned and acquisition of real property<br>○ Procurement of all A/E and construction services for State-owned facilities |

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| **New Mexico General Services Dept.**<br>Edward J. Lopez, Jr., Secretary | **Property Control Division**<br>Bill Taylor, Director<br>Bll.taylor@state.nm.us<br>505-827-2141 | *Mission: Ensure that the citizens of New Mexico receive the best value in design, construction and management of State and Leased facilities.*<br><br>*Description/Notes:*<br>▪ over 800 owned buildings of all types<br>▪ almost 7million square feet, valued at over $ 892 million replacement cost<br>▪ more than 550 leased properties<br>▪ over 3.5 million square feet, requiring nearly $30 million in rent payments, annually |
| **New York General Services Dept.**<br>Kenneth Ringler, Commissioner<br>Empire State Plaza<br>Albany, NY 12242<br>Phone: 518-474-5991<br>FAX: 518-486-9179<br>http://www.ogs.state.ny.us/ | **Real Property Management and Development: Design and Construction Group**<br>Attn: Jim Davies<br>design.construction @ogs.state.ny.us<br><br>**Real Property Management And Development: Bureau of Project Management**<br>Real.property@ogs.state.ny.us | *Description/Notes:*<br>▪ Real Property Management and Developmentsiness unit has an annual operating budget of over $110 million and 1,000 employees.<br>▪ The Real Property Management Group administers approximately 18 million square feet of State-owned space valued at more than $3 billion with an annual Capital Projects budget of approximately $30 million.<br>▪ The Design and Construction Group provides a full range of professional architectural/engineering and construction management services to state agencies. The Group performs its functions through three divisions, Design, Contract Administration and Construction.<br>▪ The Bureau of Project Management performs the following services: assist agencies in determining requirements, issue associated Request for Proposals (RFPs), evaluate responses, negotiate lease requirements for the preparation of the space, review specifications, |

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| | | and oversee the architectural planning and space planning for the space. |

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| **North Carolina Dept. of Administration**<br>Gwynn T. Swinson, Secretary<br>116 West Jones Street<br>1301 Mail Service Center<br>Raleigh, NC 27699-1301<br>Phone: 919-807-2425<br>FAX: 919-733-9571<br>http://www.doa.state.nc.us/ | **State Construction Office**<br>Farouk Zaman, Building Engineer<br>Farouk.zaman@ncmail.net<br>(919)733-7962<br>http://interscope2.doa.state.nc.us/ | *Mission: To direct and guide the state's capital facilities development and management process. To effectively and efficiently manage the state's capital improvement process to assure that improvements to the state's physical properties can be reasonably completed with the amount of money appropriated, and that improvements have been designed and constructed giving proper consideration to economy in first cost, maintenance cost, in materials, and type of construction.*<br><br>Description/Notes:<br>*Major Responsibilties:*<br>▪ Budget and Appropriation<br>▪ Designer Selection<br>▪ Design Contracts<br>▪ Review and Approval<br>▪ Contract Award<br>▪ Construction Phase<br>▪ Consulting Services<br>▪ Facility Condition Assessment<br>▪ The State Building Commission<br><br>▪ The duties of the Commission include establishing standard procedures for designer selection, coordination of plan review and approval, post occupancy evaluation, designer and contractor evaluation and is responsible to study and recommend ways to improve effectiveness and efficiency of the state's capital facilities management program. |
| **North Dakota Office of Management and Budget**<br>Pam Sharp, Interim Director | **Facility Management Division**<br>Joel Leapaldt, State Facility Planner<br>(701) 328-1968 | *Mission: Office of Management and Budget's Mission Statement:To provide a range of products and services resulting in a well run* |

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| 600 E. Boulevard Ave.<br>Dept. 110<br>Bismarck, ND 58505-0400<br>Phone: 701-328-4904<br>FAX: 701-328-3230<br>http://www.state.nd.us/omb/ | jleapaldt@state.nd.us<br>http://www.state.nd.us/fac/ | *government that meets the needs of the North Dakota citizens.*<br><br>▪ Facility Management is a Division of the Office of Management and Budget<br><br>*Mission: Facility Management's Mission Statement: To provide clean, safe, friendly and efficient service to all who use our facilities resulting in a positive public image. The Facility Management Division stands for caring, dignity, and respect of the individual: quality service: open communications: and teamwork.* |
| **Ohio Department of Administrative Services**<br>C. Scott Johnson, Director<br>30 E. Broad St.<br>Suite 4040<br>Columbus, OH 43215-3414<br>Phone: 614-466-6511<br>FAX: 614-644-8151<br>http://www.state.oh.us/das/ | **General Services**<br>Richard M. Hickman, GSD Deputy Director<br>Richard.Hickman@das.state.oh.us<br>Phone: (614) 466-4459<br>http://www.state.oh.us/das/gsd/index.htm | *Mission: The Office of GSD Properties and Facilities is committed to providing State agencies, boards, commissions and universities with centralized multi-faceted and technical real estate services that include: site selection, commercial lease negotiation, purchase, sale and oversight of state-owned land buildings and leased facilities. The office provides facilities maintenance and safety and security services for many state buildings and operates the Federal and State Surplus programs through which property declared surplus is made available to government entities or sold at public auction.*<br><br>Description/Notes:<br>▪ General Services includes: facilities management, real estate services, safety security services |

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| **Oklahoma Department of Central Services**<br>Pamela M. Warren, Director of Central Services<br>P.O. Box 53218<br>Will Rogers Office Building<br>2401 North Lincoln Blvd<br>Suite 206<br>Oklahoma City, OK 73152-3218<br>Phone : 405-521-2124<br>FAX: 405-522-3861<br>http://www.dcs.state.ok.us/OKDCS.nsf | **Facility Services**<br>Mark Sauchuk, Deputy Director<br>Mark_sauchuk@dcs.state.ok.us<br>(405) 521-3395<br>Fax: (405) 521-4429<br><br>**Construction & Properties**<br>(405) 521-2112<br>Fax: (405) 522-0051 | Description/Notes:<br>▪ *Construction and Properties* is responsible for developing and awarding contracts for state construction. It is also the contracting entity for Architects and Engineers doing design work for the state and coordinates the leasing of office space by state agencies in both state and privately owned property. This staff reviews plans and specifications, approves new construction, renovation and repair projects. Primary and final inspections are conducted by this office, as well as monitoring all phases of roofing projects.<br><br>▪ *Facilities Services*, formerly Building Management, operates and maintains seventeen buildings, including the State Capitol, Governor's Mansion and buildings in the Capitol Complex, Tulsa and Ada. The total space managed is approximately two million square feet. In addition, Facilities Services is responsible for major maintenance at the George Nigh Rehabilitation Center in Okmulgee and oversight of all bond projects in state buildings. |
| **Oregon Dept. of Administrative Services**<br>Gary Weeks, Director<br>155 Cottage Street NEU20<br>Salem, OR 97301-3966<br>Phone: 503-378-3104<br>FAX: 503-373-7643<br>http://www.state.or.us/agencies.ns/10700/index.html | **Facilities Division**<br>Laurie Warner, Administrator<br>Bill Foster, State Architect<br>Bill.l.foster@state.or.us<br>(503) 378-4138<br>http://www.state.or.us/agencies.ns/10700/00060/index.html | Description/Notes:<br>Facilities Division Services:<br>▪ planning and construction services<br>▪ real property<br>▪ operations and maintenance<br><br>▪ The Facilities Division acquires and maintains office space for the state's agencies.<br>▪ Agencies lease about 3.6 million square feet of commercial space through the Facilities |

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| | | Division.<br>▪ The State Architect and Leasing and Property Agents help bring new facilities into existence. They also manage updates and additions to existing buildings.<br>▪ State owns and maintains 2.3 million s.f. of space<br>▪ Policy Manual available online: http://www.facilities.das.state.or.us/policymanual.html |
| **Pennsylvania Department of General Services**<br>Donald T. Cunningham, Jr., Secretary<br>Harrisburg, PA 17101<br>Phone: (717) 787-5996<br>http://www.dgs.state.pa.us | **Bureau of Construction**<br>Room 100 Tent Building<br>18th & Herr Streets<br>Harrisburg, PA 17125<br><br>Robert Glenn, Director<br>rglenn@state.pa.us<br>http://www.dgs.state.pa.us<br>Phone: (717)-787-7095 (voice)<br>Fax: (717) 783-3473 | *Mission: At DGS, it is our mission to provide high quality services at a good price to support the operation of state government. It is imperative that we make cost-effective service our primary mission. In addition, we will work to make government more friendly for its users, expand opportunity for minority and women-owned businesses and reduce operating costs for the agencies of state government that we support.*<br><br>Description/Notes:<br>▪ oversees procurement of goods and services<br>▪ manages non-highway capital projects and state buildings and facilities<br>▪ acts as the state's real estate agent and insurance broker. |

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| **Rhode Island Dept. of Administration**<br>Robert Higgins, Director<br>1 Capitol Hill<br>Providence, RI 02908<br>Phone: 401-222-2280<br>FAX: 401-222-6436<br>http://www.info.state.ri.us/admin.htm | **Central Services Division**<br>Bill Ferguson, Associate Director<br>billf@gw.doa.state.ri.us<br>(401) 222-6200<br><br>**Public Buildings Authority**<br>(401) 421-2932<br>http://www.state.ri.us/manual/data/queries/stdept_.idc?id=11 | *Mission: Mission of the Public Buildings Authority --to benefit the people of the State of Rhode Island and provide for their general health and welfare and to maintain the high standards of public facilities and public equipment in the State.*<br><br>Description/Notes:<br>The purpose of the Public Buildings Authority is to acquire, construct, improve equipment, furnish, install, maintain and operate public facilities and public equipment through the use of financing, for lease to Federal, State, regional and municipal government branches, departments and agencies, in order to provide for the conduct of the executive, legislative and judicial functions of government. |
| **South Carolina Budget and Control Board**<br>Frank Fusco, Executive Director<br>PO Box 12444<br>1201 Main St., Ste. 420<br>Columbia, SC 29211<br>Phone: 803-734-2320<br>FAX: 803-737-2117<br>http://www.ogs.state.sc.us/OGS/GS-index.phtm | **General Services Division**<br>Joe Rogers, Director of General Services<br>Jrogers@gs1.state.sc.us<br>(803) 737-0010 | Description/Notes:<br>▪ Real property leasing, purchasing, selling and appraisal Capital improvement planning and processing Maintenance, operation and renovation of State buildings<br>▪ 88 state public buildings<br>▪ Site selection is individual to agencies in South Carolina, not controlled by any one agency. |
| **South Dakota Bureau of Administration**<br>Steve Stoneback, Acting Commissioner<br>500 E. Capitol Ave.<br>Pierre, SD 57501<br>Phone: 605-773-3688<br>FAX: 605-773-3887<br>http://www.state.sd.us/ | **State Engineers Office**<br>Loren Schaefer, Acting Director<br>Loren.Schaefer@state.sd.us<br>(605) 773-5227 | Description/Notes:<br>OSE provides services for the state in three areas:<br><br>1. Managing the construction process for all new construction, excluding highway construction.<br>2. Managing the South Dakota statewide |

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| | | maintenance and repair program.<br>3. Providing technical assistance and advice to Physical Plant Directors on matters beyond their in-house capability. |
| **Tennessee Department of Finance & Administration**<br>Dave Goetz, Commissioner<br>21st Fl WR Snodgrass TN Tower<br>312 8th Ave N<br>Nashville, TN 37243<br>Ph: (615) 741-4083<br>Fax: (615) 532-8594<br>http://www.state.tn.us/finance/cpm/cpm.html | **Capital Projects & Real Property Management,**<br>**Capital Projects Division**<br>Cliff Steger, Director<br>Cliff.steger@state.tn.us<br>(615) 741-4083<br>http://www.tennessee.gov/finance/cpm/capitalhome.html | *Mission: The division's mission is to utilize passion, persistence, and performance in the management of capital initiatives and real property assets for the citizens and State of Tennessee.*<br><br>Description/Notes:<br>Capital Projects, under the oversight of Director Cliff Steger, is organized into three major areas of responsibilities: Technical Services Management, Design and Construction Management, and Planning & Procurement. Capital Projects Management administers the State's Capital Construction Program, which includes planning, design and construction; and technical services. |
| **Texas Building and Procurement Commission (TBPC)**<br>Randall H. Riley, Executive Director<br>PO Box 13047<br>1711 San Jucinto<br>http://www.tbpc.state.tx.us/ | **Facilities Planning**<br>Michael Lacy, Facility Planner<br>Michael.lacy@tbpc.state.tx.us<br>http://www.tbpc.state.tx.us/facplan/index.html<br><br>**Facilities Construction and Space Management Division**<br>http://www.tbpc.state.tx.us/faconstr/index.html | *Mission: The Texas Building and Procurement Commission will continually employ cost-effective and innovative methods to provide quality goods, services, and facilities to meet the demands of the State of Texas.*<br><br>Description/Notes:<br>Facilities Planning's key services and functions are:<br>▪ long-range and strategic analyses & planning<br>▪ space allocation & management;<br>▪ database development & maintenance |

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| | | ▪ pre-design, space programming & plan review.<br>▪ Strategic plan available at: http://www.tbpc.state.tx.us/execut/stratplan.doc |
| **Utah Dept. of Administrative Services**<br>Camille Anthony, Executive Director<br>3120 State Office Building<br>Salt Lake City, UT 84114<br>Phone: 801-538-3010<br>FAX: 801-538-3844<br>http://www.das.state.ut.us/ | **Division of Facilities, Construction and Management**<br>Joseph A. Jenkins, Director<br>jjenkins@utah.gov<br>(801) 538-3162<br>http://dfcm.utah.gov/about/contacts/contacts.htm | *Mission: The DFCM mission is to ensure that the citizens fo Utah receive full value in the design, construction, and management of State Facilities.*<br><br>Description/Notes:<br>▪ The policy board for DFCM is the Building Board.<br>▪ Design Criteria available at: http://dfcm.utah.gov/publications/publications_files/design_criteria.pdf |
| **Vermont Dept. of Buildings & General Services**<br>Thomas Torti, Commissioner of Buildings and General Services<br>2 Gov. Aiken Ave.<br>Montpelier, VT 05633-5802<br>http://www.bgs.state.vt.us/ | **Property Management**<br>Guy Norwood, Buildings Engineer<br>Guy.norwood@state.vt.us<br>(802) 828-3390<br>http://www.bgs.state.vt.us/facilities/prop_man/index.htm | *Mission: To provide State Agencies with safe, comfortable, and efficient space through leasing; purchasing; planning; inventory and assignments which enables them to carry out their mission.*<br><br>Description/Notes:<br>*Goals:*<br>To efficiently plan, provide and manage State-owned and leased office and specialty space to minimize the impact on the State's budget;<br><br>To facilitate changes to existing space in a timely manner to enable occupants to adapt to changes in programs and<br><br>To maintain an inventory of space to facilitate |

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| | | proposed back charging of space to users. |
| **Virginia Department of General Services**<br>James T. Roberts, Director<br>202 N Ninth St Ste 209<br>Richmond, VA 23219<br>Phone: 804-786-6152<br>FAX: 804-371-8305<br>http://www.dgs.state.va.us/ | **Div. Of Engineering and Building Bureau of Facilities Management**<br>Bruce Brooks, Director<br>bbrooks@dgx.state.va.us<br>(804) 786-1821<br><br>**Div. of Engineering and Building Bureau of Capital Outlay Mgt.**<br>(804) 786-3581 | Description/Notes:<br>The Division of Engineering and Buildings oversees Commonwealth of Virginia construction and capital outlay projects, as well as real estate acquisition and disposal, and maintains buildings and grounds at the seat of government.<br><br>*Bureau of Capital Outlay Management:*<br>▪ Provides building code, cost and procurement reviews of state agency construction and capital outlay projects<br>▪ Develops state policies and procedures on the procurement of professional and construction services<br>▪ Maintains the *Commonwealth of Virginia Construction and Professional Services Manual* |
| **Washington Department of General Administration**<br>Robert Fukai, Director<br>Rfukai@ga.wa.gov<br>210 11th Avenue SW<br>P.O. Box 41000<br>Olympia, WA 98504-1000<br>Phone: 360-902-7300<br>FAX: 360-586-5898<br>http://www.ga.wa.gov/ | **Capital Planning & Management: Division of Engineering and Architectural Services**<br>John Lynch, Assistant Director<br>jlynch@ga.wa.gov<br>(360) 902-7272<br><br>**Capital Planning & Management: Division of Capital Facilities**<br>William Moore, Assistant Director<br>bmoore@ga.wa.gov<br>(360) 902-0951<br>http://www.ga.wa.gov/customer/cust-fs.htm | *Mission: Dept. of General Administraion -- GA helps its customers succeed*<br><br>Description/Notes:<br>▪ Capital Planning and Management manages many of the state-owned and leased facilities on the Capitol Campus in Olympia. Its customers include the state agencies and their employees in these buildings. The program also provides services to visitors who use the facilities for business, educational and recreational purposes.<br><br>▪ Engineering & Architectural Services Division provides comprehensive planning, design, construction, and energy-management services for construction projects by and for the |

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| | | state of Washington. The division helps its clients address planning, architectural, and engineering problems; manages the timely completion of their capital construction projects within budget; and performs work effectively and consistently with consultants and the building industry. |
| **Wyoming Department of Administration and Information**<br>Denise Farrell, Deputy Director<br>2001 Capitol Avenue<br>Emerson Building Room 104<br>Cheyenne, WY 82002-0060<br>Phone: 307-777-7201<br>FAX: 307-777-3633<br>http://ai.state.wy.us/ | **General Services Division: Facilities Planning & Construction**<br>John Mahoney<br>jmahon@missc.state.wy.us<br>307-777-6101<br>http://ai.state.wy.us/generalservices/index.asp | Description/Notes:<br>General Services Department includes:<br>▪ Facilities Management<br>▪ Facilities Planning and Construction<br><br>▪ Facilities Planning and Construction guidelines available at: http://ai.state.wy.us/generalservices/index.asp |